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Outlook

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SPRING 2011

 Washington
University in St. Louis
SCHOOL OF MEDICINE



Gearing up

Improving pre-hospital
emergency medicine



PERSPECTIVES ON THE BRAIN



EDUCATION Simeon Schlaggar examines a human brain at NeuroDay at the Saint Louis Science Center. He is the son of Bradley L. Schlaggar, MD, PhD, the A. Ernest and Jane G. Stein Associate Professor of Developmental Neurology, and Christina N. Lessov-Schlaggar, PhD, research assistant professor of psychiatry. The special event, an opportunity for the public to learn about brain science, was jointly sponsored by Washington University and the Saint Louis Science Center and staffed in part by Washington University students.

TREATMENT An apparatus is prepared for use in steadying the patient and guiding precise implantation of a deep brain stimulation device for treating Parkinson's disease. To learn more, turn to page 12.

OUTLOOK • SPRING 2011

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Washington University School of Medicine

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The New First Responders

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Phoenix Rising

21 When the university reorganized its medical college in the early 20th century, its leaders looked to Eastern universities to fill the ranks.

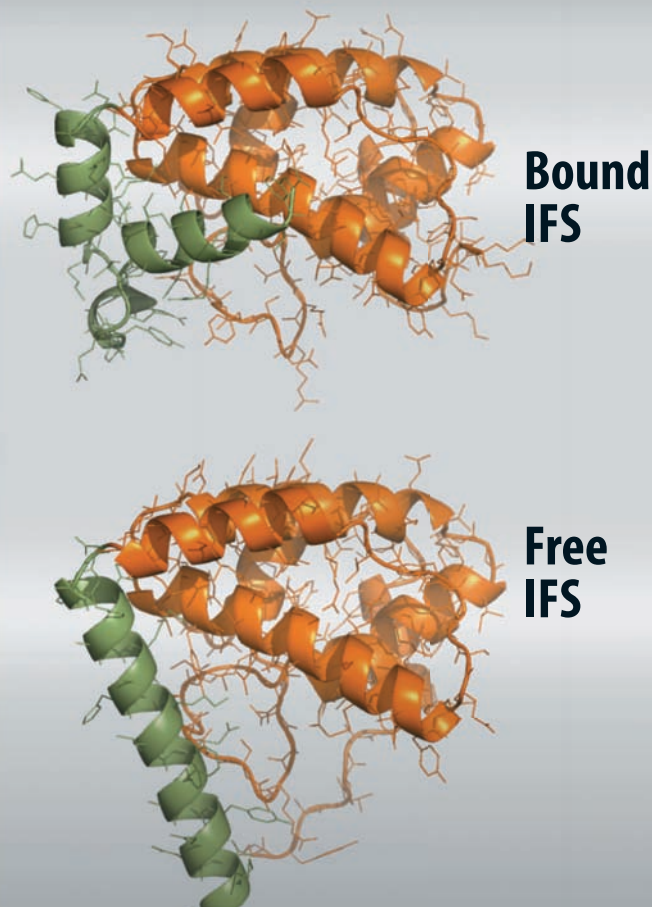
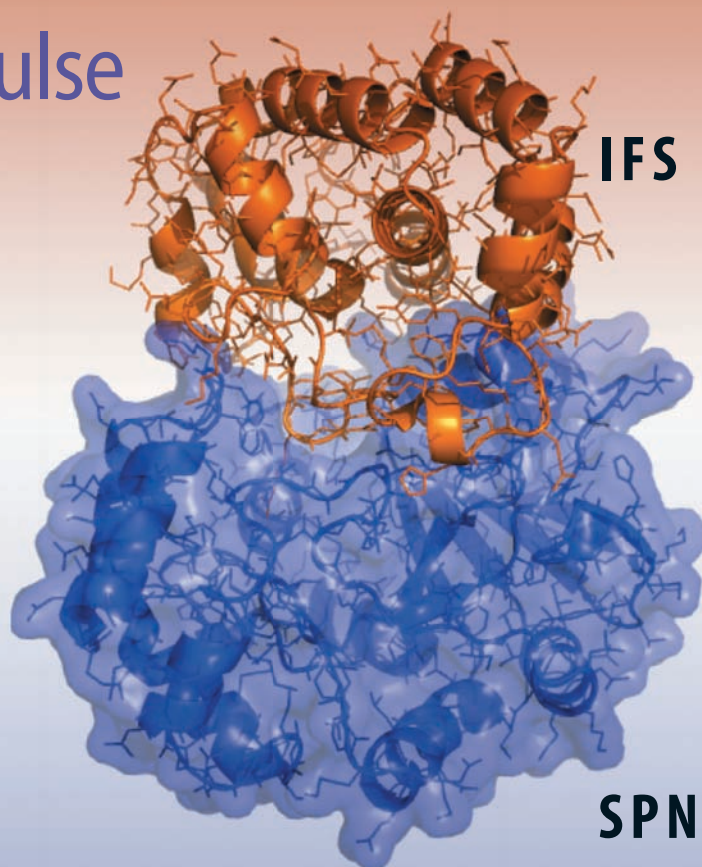
COVER David K. Tan, MD, chief of the EMS Section in the Division of Emergency Medicine, works closely with area rescue organizations to bring top-quality care to patients *before* they arrive at the emergency department. Under his leadership, Washington University EMS has been designated as the first and only physician-based emergency medical response agency in Missouri. To learn more, please turn to page 16.

PHOTO BY ROBERT BOSTON

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CRAIG L. SMITH, PHD

Bacterial infighting

Could antibiotics turn pathogens against themselves?

Bacteria often attack with toxins designed to hijack or even kill host cells. But, to avoid self-destruction, bacteria have ways of protecting themselves from their own toxins.

School of Medicine researchers now have described one of these protective mechanisms, potentially paving the way for new classes of antibiotics that cause the bacteria's toxins to turn on themselves.

Scientists determined the structures of a toxin and its antitoxin in *Streptococcus pyogenes*, common bacteria that cause infections ranging from strep throat to life-threatening conditions like rheumatic fever. In strep, the antitoxin is bound to the toxin in a way that keeps the toxin inactive.

"Strep has to express this antidote, so to speak," says Craig L. Smith, PhD, a post-doctoral researcher and first author on the paper that appeared Feb. 9, 2011, in the journal *Structure*. "If there were no antitoxin, the bacteria would kill itself."

With that in mind, Smith and colleagues

may have found a way to make the antitoxin inactive. They discovered that when the antitoxin is not bound, it changes shape.

"That's the Achilles' heel we would like to exploit," says Thomas E. Ellenberger, DVM, PhD, the Raymond H. Wittcoff Professor and head of the Department of Biochemistry and Molecular Biophysics at the School of Medicine. "A drug that would stabilize the inactive form of the immunity factor would liberate the toxin in the bacteria."

In this case, the toxin is known as *Streptococcus pyogenes* beta-NAD⁺ glycohydrolase, or SPN. Last year, coauthor Michael G. Caparon, PhD, professor of molecular microbiology, and his colleagues in the Center for Women's Infectious Disease Research showed that SPN's toxicity stems from its ability to use up all of a cell's stores of NAD⁺, an essential component in powering cell metabolism. The antitoxin, known as the immunity factor for SPN, or IFS, works by blocking SPN's access to NAD⁺, protecting the bacteria's energy supply system.

The *Streptococcus pyogenes* toxin SPN (purple) is inhibited by the antitoxin IFS (left, orange). IFS blocks the active site of SPN and prevents NAD⁺ from binding. When bound to SPN, one end of IFS is folded into a compact form (upper right, green). Alone, the same end of IFS extends straight out (lower right, green). Forcing IFS to stay in this free state would release the SPN toxin to attack the bacteria themselves.

With the structures determined, researchers can now test possible drugs that might force the antitoxin to remain unbound to the toxin, thereby leaving the toxin free to attack its own bacteria.

"The most important aspect of the structure is that it tells us a lot about how the antitoxin blocks the toxin activity and spares the bacterium," says Ellenberger.

Understanding how these bacteria cause disease in humans is important in drug design.

Many types of bacteria have evolved this toxin-antitoxin method of attacking host cells while protecting themselves. But today, there are no classes of drugs that take aim at the protective action of the bacteria's antitoxin molecules.

"Obviously they could evolve resistance once you target the antitoxin," Ellenberger explains. "But this would be a new target. Understanding structure is a keystone of drug design."

Physicians provide top-tier care for patients with heart attacks

WU/BJH among top 5 percent nationally

Washington University physicians at Barnes-Jewish Hospital are in the top 5 percent nationally in the speed with which they treat heart attacks.

When a patient having a heart attack arrives at the emergency department (ED), the clock is ticking. And the clock keeps ticking, seemingly faster and faster.

The American Heart Association (AHA) recommends that patients suffering heart attacks receive artery-clearing therapy as soon as possible. One option is balloon angioplasty within 90 minutes of arriving at the ED. Previously, the AHA recommended maximum time for this process, called “door-to-balloon,” was 120 minutes. The association tightened the standard to save more lives.

Angioplasty is a procedure in which a tiny balloon is threaded into a narrowed heart artery and inflated to reopen blood flow. It is considered to be the most effective method of restoring blood flow to the heart.



“The 90-minute benchmark must be met, whether it’s Christmas Day or any other day.”

— Douglas M. Char, MD

patients who get treatment within this time period suffer less heart damage and have better outcomes.”

Some of the new measures ED physicians have taken include having paramedics at the scene fax or call in electrocardiogram results from the patient to the hospital. Within minutes, ED physicians activate the full angioplasty team.

To further reduce “door-to-balloon” time, the catheterization laboratory has moved from Queeny Tower to one floor above the ED. Additionally, ED physicians conducted time-motion studies to find other ways to speed up the process. The hallway to the cath lab elevator was reconfigured to shave minutes off the treatment time.

The American Heart Association awarded Barnes-Jewish Hospital the Gold performance certificate in 2009 for emergency cardiac care.



Student inventors Engineering scholars Nalin Katta, left, and Matthew R. MacEwan recently won the Olin Cup business plan competition and \$50,000 in seed investment for an invention that can replace the protective covering of the brain. Their company, NanoMed, uses electrospun nanofiber materials to create a synthetic surgical mesh capable of repairing and replacing the tough protective membrane surrounding the brain and spinal cord. MacEwan is pursuing a doctorate of medicine from the School of Medicine and a doctorate in biomedical engineering from the School of Engineering & Applied Science as part of the Medical Scientist Training Program.

Three faculty receive Goldstein Awards

F. Sessions Cole, MD, Mark D. Levine, MD, and Megan E. Wren, MD, have been honored with the 2010 Samuel R. Goldstein Leadership Awards in Medical Education.

The annual awards, which recognize outstanding teaching and commitment to medical education, are among the highest honors that Washington University School of Medicine faculty can achieve. They were established in 2000 in memory of Goldstein, a longtime friend of the medical school.

Cole is the Park J. White, MD, Professor and vice chairman of the Department of Pediatrics. He is also assistant vice chancellor for children’s health, director of the Division of Newborn Medicine and chief medical officer at St. Louis Children’s Hospital.

Levine is assistant professor of medicine and has been the emergency medicine division director for medical school education for nine years. In addition, he is medical director of the St. Louis Fire Department.

Wren, associate professor of medicine, has devoted much of her time to medical student education for more than 20 years. She teaches second-year students about core clinical skills such as physical examination, formulating a diagnosis, writing admitting orders, principles of safe prescribing and how to write progress notes. Within the hospital, she regularly teaches third- and fourth-year students; for the latter, she has designed a pre-internship clinical review workshop.

2010 Goldstein Awardees

- F. Sessions Cole, MD
- Mark D. Levine, MD
- Megan E. Wren, MD

Having a ball

Third-year medical student David M. Levine and Ariel Lyons Warren, a student in the Medical Scientist Training Program, enjoy the music as they demonstrate their dancing skills at the 2011 MedBall held on March 12 at the Millennium Hotel in downtown St. Louis. The annual dinner dance gives School of Medicine students and faculty and their guests an opportunity to socialize with one another beyond the realm of the medical center.



RAY MARKLIN

Piwnica-Worms heads department

Helen Piwnica-Worms, PhD, the Gerty T. Cori Professor, has been named head of the School of Medicine's Department of Cell Biology and Physiology. She succeeds Philip D. Stahl, PhD, professor of cell biology and physiology, who had led the department since 1984. Piwnica-Worms and Stahl are both prior recipients of the Carl and Gerty Cori Award, one of Washington University's highest faculty honors.



Helen Piwnica-Worms, PhD

Piwnica-Worms' goals for departmental development include prominent roles for two Biomed 21 research centers, the Bridging Research with Imaging, Genomics and High-Throughput (BRIGHT) Institute and the Center for the Investigation of Membrane Excitability Disorders (CIMED).

The BRIGHT Institute is making state-of-the-art technology from a variety of fields available for study of the molecular roots of cancer, while CIMED is dedicated to the study of how flaws in

cell structures called ion channels can contribute to cystic fibrosis, epilepsy, migraine, abnormal heart rhythm, type 2 diabetes and a range of other disorders.

Piwnica-Worms' research has helped show how mechanisms known as checkpoints interface with the cell cycle machinery to delay the cell's progress through its life stages. The delays provide cells with important opportunities to inspect their DNA for damage. If damage is detected, cells can attempt repairs or self-destruct to prevent that damage from leading to cancer.

Research partnership wins award

Washington University's Human Research Protection Office (HRPO) has received an annual best practice award from the Health Improvement Institute recognizing its Community Engaged Research Program.

HRPO developed the program nearly two years ago to meet the needs of Washington University researchers involved in research collaborations or affiliations with community-based organizations and to ensure regulatory compliance for both parties, says Martha F. Jones, executive director of HRPO. As part of the program, the university can serve as the Institutional Review Board (IRB) for the community partners that do not have their own IRB.

more information
hrpo.wustl.edu

"Community partners can get overwhelmed by having to bring the work under the regulatory review process," Jones says. "So we set up a program that guides them through the process very specifically."

A website for Washington University researchers and their community partners streamlines the IRB process by giving an overview of the process as well as step-by-step instructions with checklists and a manual.

Sarah B. Fowler-Dixon, PhD, education specialist, serves as the HRPO point person for both parties. "As more community-engaged research is done at Washington University, we plan to expand our resources to facilitate that research," says Fowler-Dixon.

The Health Improvement Institute is a nonprofit organization dedicated to improving the quality and productivity of America's health care.

Center for the Study of Itch opens

The School of Medicine has launched its new Center for the Study of Itch, believed to be the world's first multidisciplinary program designed solely to understand and treat itch.

The new center was established to bring scientists and clinicians together to conduct research on the mechanisms that transmit itch and, ultimately, to translate those findings into better treatments for chronic sufferers.

The Center for the Study of Itch will include two primary sections: Zhou-Feng Chen, PhD, director of the new center and professor of anesthesiology, psychiatry and developmental biology, will lead the basic research and behavioral core based in the Department of Anesthesiology; Lynn A. Cornelius, MD, co-director of the center and chief of the Division of Dermatology in the Department of Medicine, will direct the clinical side.

In addition to basic and translational research, the center will provide educational training opportunities for scientists interested in studying itch. The center is hiring three full-time faculty members to initiate more studies that focus on itch, its causes and potential treatments.



Disaster relief Students, faculty and staff turned out in large numbers for T-shirt, bake and craft sales held on March 23 in the Seashell Lobby in the McDonnell Medical Sciences Building at the School of Medicine. The fundraising events were part of "Don't Give Up, Japan!," a campus-wide initiative sponsored by the Washington University Spouses & Partners Association and the Japanese Happy Hour, a scientific study group. The sales sold out quickly; total funds raised reached about \$7,500, and 100 percent of the proceeds will be donated to Japan earthquake tsunami relief organizations.



BETH MILLER

NANOTECHNOLOGY

Spotted! New nanoparticles make blood clots visible

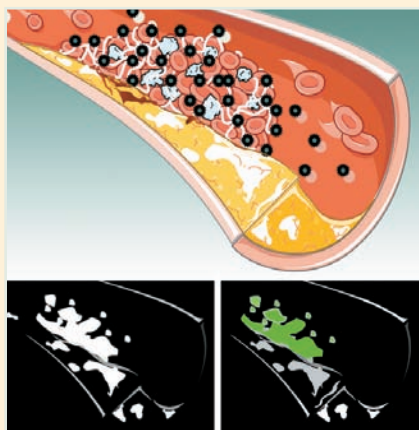
For almost two decades, cardiologists have searched for ways to see dangerous blood clots before they cause heart attacks.

Now, researchers at the School of Medicine report they have designed nanoparticles that find clots and make them visible to a new kind of X-ray technology.

According to Gregory M. Lanza, MD, PhD, a Washington University cardiologist at Barnes-Jewish Hospital, these nanoparticles will take the guesswork out of deciding whether a person with chest pain is actually having a heart attack.

"Every year, millions of people come to the emergency room with chest pain. For some, we know it's not their heart. But for most, we're not sure," says Lanza, professor of medicine. When there is doubt, the patient must be admitted to the hospital and undergo tests to rule out or confirm a heart attack, costing money and time.

This new technology could reveal the location of a blood clot in a matter of hours.



WILEY-VCH VERLAG GMBH & CO. KGAA

A blood vessel (top) with ruptured atherosclerotic plaque (yellow) is developing a blood clot. The nanoparticles (blue and black) are targeted to a protein in the blood clot called fibrin (light blue). A traditional CT image (bottom left) shows no difference between the blood clot and the calcium in the plaque, making it unclear whether this image shows a clot that should be treated. A spectral CT image (bottom right) "sees" the bismuth nanoparticles targeted to fibrin in green, differentiating it from the calcium in the plaque.

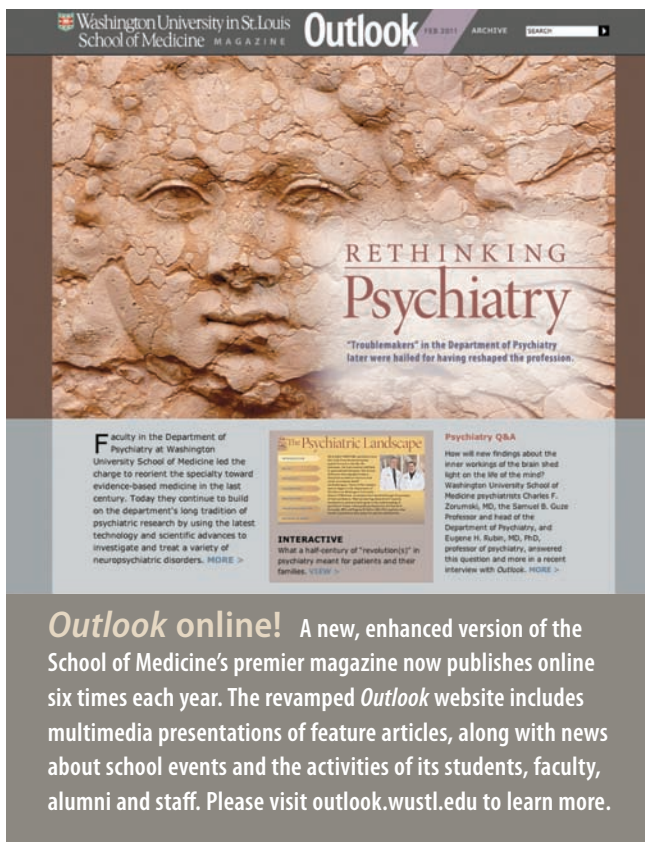
The nanoparticles are designed for use with a new type of CT scanner that "sees" metals in color. The new technology, called spectral CT, uses the full spectrum of the X-ray beam to differentiate objects that would be indistinguishable with a regular CT scanner that sees only black and white.

In this case, the metal in question is bismuth. Dipanjan Pan, PhD, research assistant professor of medicine, designed a nanoparticle that contains enough bismuth for it to be seen by the spectral CT scanner.

More than simply confirming a heart attack, the new nanoparticles and spectral CT scanner can show a clot's exact location.

With this imaging technique, Lanza predicts new approaches to treating coronary disease, technologies that might act like Band-Aids, sealing weak spots in vessel walls.

"Today, you wouldn't know where to stick the Band-Aid," Lanza says. "But this technique would show the exact location of clots in the vessels, making it possible to prevent the dangerous rupture of unstable plaque."



Outlook online! A new, enhanced version of the School of Medicine's premier magazine now publishes online six times each year. The revamped *Outlook* website includes multimedia presentations of feature articles, along with news about school events and the activities of its students, faculty, alumni and staff. Please visit outlook.wustl.edu to learn more.

Burgers named Brennecke Professor

Peter M.J. Burgers, PhD, has been named the Marvin A. Brennecke Professor of Biological Chemistry at Washington University School of Medicine.

The professorship is named for Marvin A. Brennecke, MD 30, who died in 1994, leaving a gift to the university that provides ongoing funding for three named professorships. In addition to Burgers' appointment, the gift supports the Brennecke Professor of Molecular Microbiology and the Brennecke Professor of Biophysics.

The named professorship will provide continuous funding for Burgers' research, which focuses on DNA replication and repair.

"I'm delighted with the recognition the Brennecke professorship provides," says Burgers. "I'm also glad because it will allow me to provide research training for additional students and postdoctoral researchers in my lab, and it comes in very useful at a time when National Institutes

of Health funding is tight."

Burgers studies DNA metabolism in yeast cells, which typically have very similar regulatory mechanisms to those found in human cells. He is particularly interested in the DNA replication fork, where active duplication of the genetic material takes place, and in the mechanisms that come into play when replication goes awry because of DNA damage or other stress.

Burgers was named a fellow of the American Association for the Advancement of Science earlier this year.



Peter M.J. Burgers, PhD

Program in Physical Therapy launches clinic for runners

Promoting efficient running mechanics

Running puts extra demands on a person's feet, legs and rest of the body. Running with any kind of abnormal movement may tack on even more stress, leading to pain or injury.

To help runners reach their potential, the Program in Physical Therapy at the School of Medicine has opened a running clinic to diagnose movement problems and promote the most efficient running mechanics for each runner.

Gregory W. Holtzman, DPT, assistant professor of physical therapy, developed the clinic using Washington University Physical Therapy's expertise in movement in conjunction with video technology that provides runners with an in-depth analysis of their running styles.

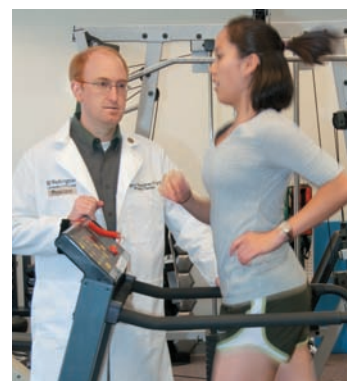
"Runners tend to fall in a cycle of run, get pain, rest, then run, get pain again and rest again," Holtzman says. "The reason they keep having pain is they are returning with the same running mechanics. If they don't do anything to change the mechanics, they will continue to stress specific areas of their bodies. We help them break that cycle."

Holtzman will operate the clinic with physical therapy colleagues Judith R. Gelber, DPT, and Ryan DeGeeter, DPT. Marcie Harris Hayes, DPT, will lead its research efforts.

The clinic isn't a training program or personal coaching, Holtzman stresses. "Our area of expertise is mechanics, and we will help the runner to run their way," he says. "I don't have a theory that everyone should run the same way. I'm going to have them run in a way that's best for them."

Runners coming to the clinic will have 60-to 90-minute sessions with Holtzman, Gelber or DeGeeter, who will provide musculoskeletal evaluations to determine any impairments in muscle length, strength and mobility. The therapist then provides a custom home exercise program to address impairments. Next, the therapist will videotape runners on a treadmill to pick up any other movement problems.

Following the initial evaluation, patients can expect two to six follow-up visits over the next several months. Patients must have a referral from a licensed health-care provider to participate in the running clinic.



Gregory W. Holtzman, DPT, works with a runner in the Program in Physical Therapy Running Clinic.

more information
(314) 286-1940



Playing around

School of Medicine students Katherine H. Smith, Colleen H. Cotton, Nicolas A. Lewis, Gregory W. Bligard, Brigid K. Marshall, Bradley A. Fritz and Audra L. Ragan take a break from studies to rehearse for the 2011 student musical, "Curtains," held on April 14–16 at the St. Louis College of Pharmacy's Whelpley Auditorium. The annual spring musical gives students from all programs at the medical school the opportunity to become better acquainted while also showcasing their nonmedical talents.

IMMUNOBIOLOGY

Virus alert: Worm may aid studies of human infections

A workhorse of modern biology is sick, and scientists couldn't be happier. Researchers at Washington University School of Medicine, the Jacques Monod Institute in France and Cambridge University have found that the nematode *C. elegans*, a millimeter-long worm used extensively for decades to study many aspects of biology, gets naturally occurring viral infections.

The discovery means that *C. elegans* is likely to help scientists study the way viruses and their hosts interact. The findings appear online in *PLoS Biology*.

"We can easily disable any of *C. elegans*' genes, confront the worm with a virus and watch to see if this makes the infection worse, better or has no effect," says David Wang, PhD. "If it changes the worm's response to infection, we will look to see if similar genes are present in humans and other mammals."

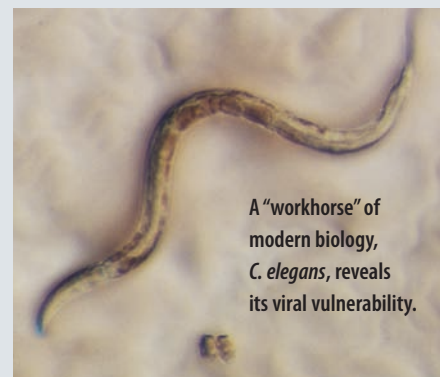
Wang, associate professor of pathology and immunology and molecular micro-

biology, says several fundamental aspects of human biology — including the ability of cells to self-destruct to prevent cancer, and RNA interference, an important process for regulating how genes are used to make proteins — were first identified in *C. elegans* and later affirmed to be present in humans.

Marie-Anne Felix, PhD, a researcher at the Monod Institute, began the study by gathering *C. elegans* from rotting fruit. Felix noted that some of her sample worms appeared to be sick. Treatment with antibiotics failed to cure them. She then repeated a classic biology experiment that led to the discovery of viruses.

"She ground up the sick worms, passed them through a filter fine enough to remove any bacterial or parasitic infectious agents and exposed a new batch of worms to the ground-up remains," Wang says. "When the new batch got sick, she knew that a viral infection was likely to be present."

Wang specializes in the identification of novel viruses. He found the worms had



A "workhorse" of modern biology, *C. elegans*, reveals its viral vulnerability.

been suffering infections from two viruses related to nodaviruses, a class of viruses previously found to infect insects and fish. Nodaviruses are not currently known to infect humans. Tests showed one of the new viruses can infect the strain of *C. elegans* most commonly used in research.

"Model organisms are essential to important steps forward in biology, and we're eager to see what *C. elegans* can teach us about the way hosts and viruses interact," Wang says.

A World of HEALTH CARE



When another culture becomes the medical student's classroom

BY HOLLY EDMISTON



WHETHER IN A ST. LOUIS CLINIC, on a southwestern Navajo reservation, or halfway across the planet, Washington University medical students are always learning. At the same time, they're also leaving a legacy of care for the communities they visit and serve.

Medical students at Washington University are well-known for the breadth of activities they perform that go above and beyond the required curriculum. In the St. Louis community, they staff a neighborhood health clinic, teach drug and sex education at city schools, and are involved in various facets of public health education.

Many students, however, wish to broaden their perspectives as future physicians by participating in research and health care in other parts of the United States or around the world. That's where the Forum for International Health and Tropical Medicine (FIHTM), a student-led group devoted to promoting the understanding of global health, comes in.

About 12 years ago, a medical school faculty committee formed to develop a system for awarding grants for international student electives. Concurrently, medical students had started FIHTM. The two groups combined their efforts and today, FIHTM, with financial support from the dean's office and the Washington University Medical Center Alumni Association, sponsors nearly 30 students each year to help realize their dreams of experiencing global health care firsthand.

HEALTH CARE NATION

First-year students (l-r) Jessica Tang, Wen Hui Tan, Amy M. Liang, Joseph B. Song, Yuewei Wu, Xiaodi Wu, Tara R. Skebba and Y. James Rao (not pictured) spent Spring Break 2010 volunteering at Teec Nos Pos, Arizona. They



toured and shadowed doctors in several clinics and hospitals on the reservation, participated in discussions about public health initiatives, gave presentations about the benefits of a college education, and worked with the Youth Empowerment Service (YES) program, an initiative that provides a variety of programs in schools and communities across the Navajo Nation. Left: Xiaodi Wu leads a nutrition demonstration by explaining portion sizes and salt and sugar content to an interested class of fifth-grade Navajo students.



ECUADOR

Michael C. Verre runs tests in a clinic on the outskirts of Quito, Ecuador's capital city.

"Medical training should include an international component," says Gary J. Weil, MD, professor of molecular microbiology and of medicine and faculty mentor for FIHTM. "Patients travel; immigrants from all over the world who have different types of diseases and different cultures come here. International experiences change our students — the way they practice medicine as well as their attitudes toward medicine."

According to Weil, FIHTM is one of the largest international electives programs offered at any medical school in the United States. "We are proud of this exciting program," he says.

Three types of travel scholarships fall under the FIHTM banner. The Student Opportunities Abroad Program (SOAP), allows first-year students to participate in research projects or medical issues in the summer between the first and second years of medical school. Spring Break community service trips allow students to learn about the medical systems of foreign cultures, whether they be within our own borders (Navajo Nation, first-years) or in a developing country (second-years). Although third-year students are generally too busy with clinical duties to travel, fourth-years can apply for Jonathan Mann Fellowships, which support clinical rotations at foreign institutions.

Kathryn M. Diemer, MD, assistant dean for career counseling, oversees the logistics behind these working trips. While students are responsible for planning all aspects of their trips — each project's focus, who their mentors will be, and whether it is safe to travel to a country based on U.S. State Department warnings, it is Diemer's job to advise students and arrange for a faculty committee review of FIHTM fellowship applications.

"Our students are very good about putting all these things together," says Diemer, "but we



FIHTM second-year student leaders have traveled to the "four corners of the earth" (l-r): Michael C. Verre, Kristen S. Grant, Sathish Subramanian, Christopher W.A. Lawrence and Yi Wang at The Map Room, a coffeehouse located in St. Louis' Benton Park neighborhood.

want to be sure that each situation is optimal. We don't want students put into the position of being expected to do more than they are trained to do, so we need to know who will be supervising them and exactly what their responsibilities will be."

Cynthia A. Wichelman, MD, assistant professor of emergency medicine, mentors FIHTM students, reviewing their weekly updates from abroad and helping to resolve issues that arise. She also is course master for International Health, a first-year selective.

"The course is an excellent opportunity for students to hear from inspirational faculty who have been instrumental in improving the lives of people in developing countries," says Wichelman. "Each year the number of students entering the School of Medicine with an interest in doing work abroad increases. We help the students prepare for the work they will do as part of FIHTM."

Wichelman and nine second-year students recently returned from a Spring Break trip to Guatemala, where Joaquin Barnoya, MD, research assistant professor of surgery, led discussions with local health care professionals. The students also assisted in rural clinics, built stoves for the poor, and visited schools and an AIDS orphanage.

Not all FIHTM students travel to poor or developing countries, however. One recent graduate traveled to Germany and eventually published a historical study of the treatment of depression in communist East Germany during the 1950s. Other students have studied specialized hand surgery in Scotland, learned about the United Kingdom's National Health Service, or worked as interns at the World Health Organization in Switzerland. The key, says Weil, is that FIHTM helps students to access experiences not available in St. Louis.

"I made the decision to attend medical school based on a desire to work in global health, but even strong motivation founders without opportunity."

MARSHALL ISLANDS

Kristen S. Grant, left, and Amanda M. Stewart teach nutrition and diabetes education.



While abroad, students are required to keep a daily log detailing their experience. Upon return, they must write a trip summary for the use of future students and present a poster at the annual FIHTM International Health Symposium. The symposium brings a visiting professor to St. Louis each year to talk about global health, while less formal events, such as lunchtime lectures and dinner meetings with faculty, take place year-round.

Weil says FIHTM has served as a model for other medical schools developing international programs, though many don't have the administrative and alumni support enjoyed at Washington University. Still, he notes, the economic downturn in recent years has decreased available alumni funding, curtailing the number of projects that can be sponsored and requiring students to cover some of their own travel and living expenses.

Heidi L. Sandige, MD 05, instructor in pediatrics, was among the first group of FIHTM students to receive SOAP fellowships. For her SOAP, Sandige traveled to Egypt, where she worked at the U.S. Naval Medical Research Unit on a clinical research study of typhoid fever in children. In later years of medical school, she worked in Malawi with Mark J. Manary, MD, professor of pediatrics, on Project Peanut Butter, in Madagascar with the American Red Cross on a measles eradication campaign, and, as a Jonathan

Mann fellow, in Belize on a wilderness emergency medicine course.

"I made the decision to attend medical school based on a desire to work in global health, but even

strong motivation founders without opportunity," says Sandige, a pediatrician at St. Louis Children's Hospital who still works overseas regularly. "I give Washington University and FIHTM tremendous credit for allowing me to realize that dream."

— HEIDI L. SANDIGE, MD 05

Sandige believes that early opportunities to experience international work are key. By the time students reach their final year of medical school, many decisions about how they will live their personal and professional lives have already been made, she says. At that point, international work may seem like a sacrifice as they face large student loans, mortgages and career commitments.

"There are many ways to arrange a career so that international medicine becomes a natural part of it," says Sandige, "but it must be a deliberate choice. Students need the opportunity to realize this possibility." □



UGANDA Catherine N. Le preps for autopsy.



GUATEMALA Cigarettes are sold with candy.



MARSHALL ISLANDS Kristen S. Grant and Joseph B. Song conduct a nutrition survey.

GOING GLOBAL The best of both worlds

Kristen S. Grant spent the summer between her first and second years of medical school in the Marshall Islands. Like many FIHTM students, she had prior international experience and was delighted to be able to expand on an adolescent nutrition program she had begun there years earlier.

"Because it is such a small country, I was able to work directly with the ministers of health and education to bring a diabetes prevention and education program right into the school system," says Grant.

Students often find that their experiences abroad involve more than hands-on medical care.

"I learned that practicing abroad wasn't just about treating patients; health is also tangled up with culture, communication, obtaining resources, getting access, bureaucracy, and many other challenges," says Yi Wang, who traveled to Sierra Leone to work on Project Peanut Butter treating child malnutrition. "FIHTM projects require students to be creative, think on their feet, and adjust to the unexpected. It's

difficult to say without sounding clichéd, but working abroad really does give students a broader perspective — health care, suffering, water — it all just has a different meaning."

Michael C. Verre traveled to Ecuador and the Amazon Basin both to use his newly acquired skills as a medical student and to improve his Spanish. He was impressed not only with how much good he was able to do for the people

there, but also with the newfound respect he developed for the quality of his own medical education.

"While each FIHTM experience is unique in its location and goals, they all provide students a very distinct perspective from which to view how we provide care here in America," says Verre. "I learned to appreciate not only how fortunate we are to train at an advanced medical center, but also how much can be done for the neediest patients even with extremely limited resources."

more information
fihtm.wustl.edu

Deep impact

Making strides in understanding and treating

BY MICHAEL PURDY

PARKINSON'S DISEASE first began to affect Susan Tinzmann, a secretary from Springfield, Ill., at the age of 47. She notes that tremor, the most infamous Parkinsonian symptom, was never her biggest problem.

"I knew my walk was funny, and just in general felt there was something weird going on," she recalls.

Tinzmann eventually came to the Parkinson's Disease Center at Barnes-Jewish Hospital, where she was diagnosed with the disorder.

"You functioned very well for a few years after diagnosis," her husband, James Tinzmann, recalls. "Then a few years later, your movement had become so limited that you started doing things like calling me on the phone to ask me to get something out of the filing cabinet for you."

The Tinzmanns can laugh about those days now because Susan's symptoms, never adequately controlled during years of trying different medications, are now significantly eased by an implant known as a deep brain stimulator (DBS). The stimulator, sometimes called a pacemaker for the brain, buzzes the brain with pulses of electric current.

"Since I've had the stimulator installed and programmed, I feel like I can get around a lot better and stay focused a little better," Tinzmann says. "After spending some time on disability and social security as a result of Parkinson's, I'm now looking for a job again."



TIME FOR A TUNE-UP

A deep brain stimulator (DBS), consisting of electrodes in her brain connected to battery-operated pulse generators in her chest, helps keep Susan Tinzmann's Parkinson's disease in check. As with all DBS recipients, Tinzmann receives regular evaluations and, when necessary, the pulse generators are reset, performed here by Dawn M. Lintzenich, RN.

Parkinson's disease

Washington University researchers are leaders in efforts to learn how deep brain stimulators affect the brain and how to fine-tune the installation and application of stimulators in order to maximize benefits and minimize adverse effects.

And those efforts are just one branch of a multidisciplinary campaign that is moving forward on multiple fronts in the battle against Parkinson's.

Although he's pleased with the progress many patients are making with DBS, Joel S. Perlmutter, MD, head of the Movement Disorders Section in the Department of Neurology, is careful to emphasize that it's an option to be considered only after the many different possible medication regimes for controlling Parkinson's disease have failed.

"As a doctor advising patients, I say, 'If the pills work, don't put two holes in your head,'" says Perlmutter, who also is professor of neurology, neurobiology, physical therapy, occupational therapy and radiology. "Surgery has serious risks, and maintenance of the implants also requires us to operate again years later to replace the batteries."

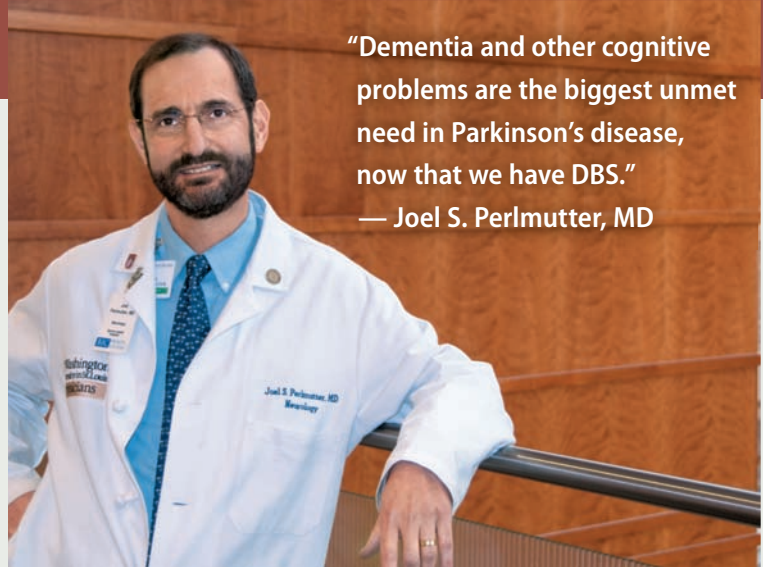
Perlmutter talks in quiet, soothing tones that contrast with the boundless energy and no-nonsense attitude he brings to patient care and research. Although initially highly skeptical of DBS, the evidence won him over.

He estimates 10 to 20 percent of Parkinson's patients eventually go on DBS. As many as 60 DBS installation surgeries are performed each year at Barnes-Jewish Hospital.

The program is led by neurologist Samer D. Tabbal, MD, associate professor of neurology, and neurosurgeons Keith M. Rich, MD, professor of neurosurgery, radiation oncology and neurobiology, and Joshua L. Dowling, MD, associate professor of neurological surgery.

How does DBS help? Thanks in part to studies by Perlmutter, Tamara G. Hershey, PhD, associate professor of psychiatry, neurology and radiology, and Kevin J. Black, MD, professor of psychiatry, neurology, radiology and neurobiology, scientists know that current from the DBS causes increased activity in regions of the brain connected to the subthalamic nucleus.

"If Parkinson's is like getting persistent crank calls in the middle of the night on your bedroom phone, the deep brain stimulator is like taking that phone off the receiver and setting it on the



"Dementia and other cognitive problems are the biggest unmet need in Parkinson's disease, now that we have DBS."

— Joel S. Perlmutter, MD

table," Perlmutter explains. "We believe the DBS causes the neurons to fire often enough that the abnormal firing patterns caused by Parkinson's disease can't get through."

Precise placement

For many patients like Susan Tinzmann, this brings significant improvements in their ability to move and walk. For some, though, it also can bring impairments in higher cognitive functions. Patients can drive a car or play golf again, but they might not be able to program a computer or may experience trouble with their moods or speech.

Could the placement of the electrodes be making a difference? Spurred in part by evidence that the subthalamic nucleus may have distinct functional areas, Tom O. Videen, PhD, research professor of radiology and neurology, Morvarid Karimi, MD, assistant professor of neurology, and several other members of the Movement Disorders Section developed a method for much more precise assessment of where DBS contacts are placed in the brain.

"We knew where the electrodes were going within a couple of millimeters, which was good enough for patient care," Perlmutter explains, "but it wasn't telling us what precise parts of the subthalamic nucleus were receiving the current and linking those parts to good results or adverse effects."

The new approach to assessing electrode placement can only be definitively confirmed via autopsies of patients who had DBS implants, an effort that's under way now. But after initial tests tentatively validated this new method, Hershey and colleagues used it to show that stimulating the

lower side of the subthalamic nucleus impaired a cognitive function known as response inhibition, which is important for impulse control and adaptive behavior.

“On another front, we had thought improvement in movement would mostly come from stimulating the top part of the subthalamic nucleus, but it turns out that effect is kind of like a hand grenade,” Perlmutter says. “We could stimulate the bottom or just above the subthalamic nucleus, yet still get motor benefit.”

Researchers are now working to use brain scans to link stimulation of particular parts of the subthalamic nucleus to increases in activity in other parts of the brain. They hope to eventually produce a map of the subthalamic nucleus that highlights the areas where DBS impulses can do the most good while causing the fewest side effects.

Factoring in dementia

One complicating factor in this mapping endeavor is the frequency with which Parkinson’s patients develop dementia.

“Dementia is fairly common in Parkinson’s patients,” says Meghan C. Campbell, PhD, research assistant professor of neurology. “If the patients live long enough after their initial diagnosis, dementia rates can rise as high as 80 percent.”

Post-mortem examinations of the brains of Parkinson’s patients reveal a great deal of abnormality in the substantia nigra, an area of the midbrain involved in movement, addiction and reward-based behavior. Normally, this area of the brain is darker than adjoining regions thanks to elevated levels of the pigment melanin; however, in Parkinson’s patients, this coloration is lost. Also lost are many of the neurons from this region that produce a neuro-transmitter called dopamine.

The brains of most Parkinson’s patients contain clumps known as Lewy bodies that are in part made up of a protein called alpha-synuclein. In addition, scientists frequently find amyloid plaques, clusters of a protein fragment that are a defining characteristic of Alzheimer’s disease, in Parkinson’s patients who become demented.

“We used to think that if Parkinson’s patients lived long enough, they also developed Alzheimer’s disease,” Campbell says. “But what we’re now finding in our patients is that while many have amyloid plaques, they don’t have a second important characteristic of Alzheimer’s, which is tangles of tau protein, a component of nerve cell structure.”

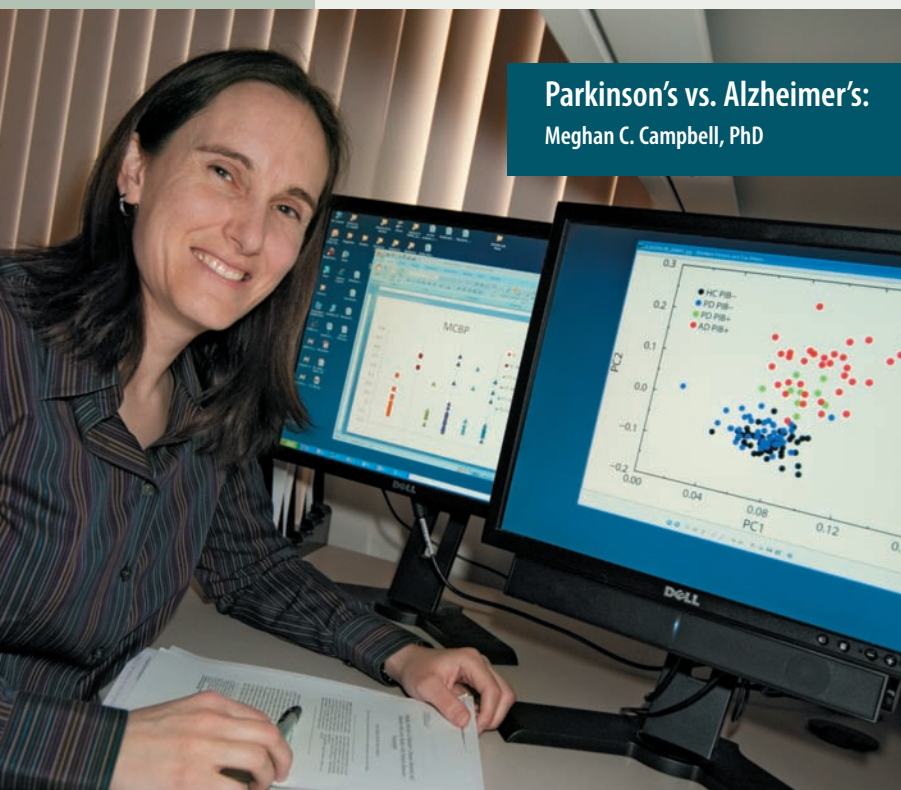
The symptoms of dementia are also slightly different in Parkinson’s patients. While Alzheimer’s patients primarily lose established memories and the ability to learn new information, Parkinson’s patients often have problems with decision-making, planning, flexibility and other complex mental tasks.

“Individuals with Parkinson’s can have problems with memory, too, but at least in the early stages it’s a problem with what we call retrieval,” Campbell says. “We can ask them to learn a list of words, and they won’t be able to remember them a short time later, but if we give them hints, they can recall the words, indicating that they’ve created a memory but need help to access it.”

It’s not yet clear if the amyloid-clearing treatments being developed for Alzheimer’s will help to prevent dementia in Parkinson’s patients, some of whom acquire high levels of amyloid without ever becoming demented.

Campbell, Perlmutter and other Washington University researchers are conducting a long-range study to determine how Parkinson’s and dementia are linked.

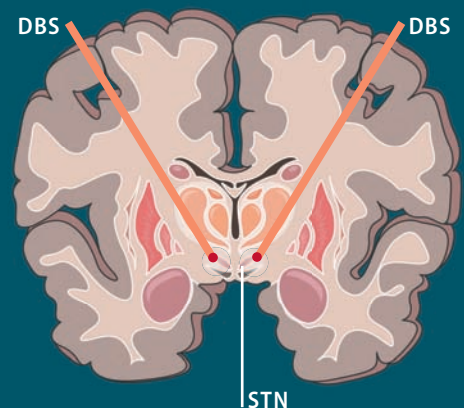
“Dementia and the other cognitive problems that occur in some patients are the biggest unmet need in Parkinson’s disease now that we have DBS,” Perlmutter adds. “But I think we’re on the way to cracking these problems, too.” □





Deep brain stimulator: a pacemaker for the brain

The periodic bursts of electric current from a deep brain stimulator (DBS) offer some control for Parkinsonian symptoms. The implantation procedure (1) involves drilling holes into the skull and using a needle to guide two wires with four electrodes each deep in the brain to the subthalamic nucleus (STN), a tiny, almond-shaped structure which is about 12 millimeters long.



ADAPTED FROM SERVIER MEDICAL ART

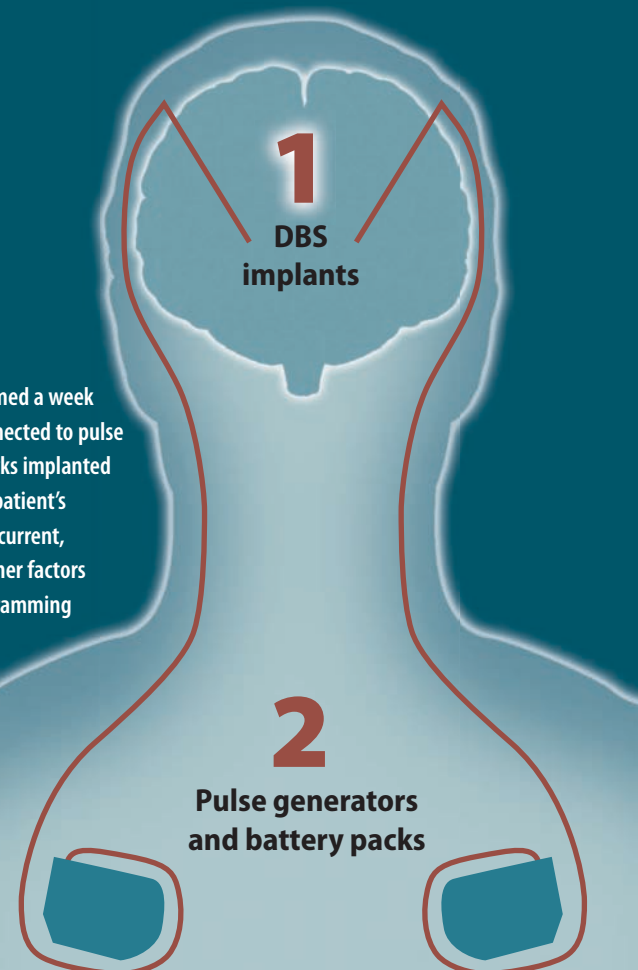


Planning the procedure: Keith M. Rich, MD, left, and Samer D. Tabbal, MD

Preparing the DBS wires and a surgical frame for precise targeting of the patient's STN: neurosurgery chief resident W. Zachary Ray, MD, left, and neurosurgeon Keith M. Rich, MD



In a second surgery performed a week later (2), the wires are connected to pulse generators and battery packs implanted under the skin, below the patient's collarbone. The amount of current, frequency of pulses and other factors are adjusted through programming appointments over subsequent months.



THE NEW *FIRST* *RESPONDERS*

How a boots-on-the-ground attitude is changing pre-hospital medicine

BY DIANE DUKE WILLIAMS

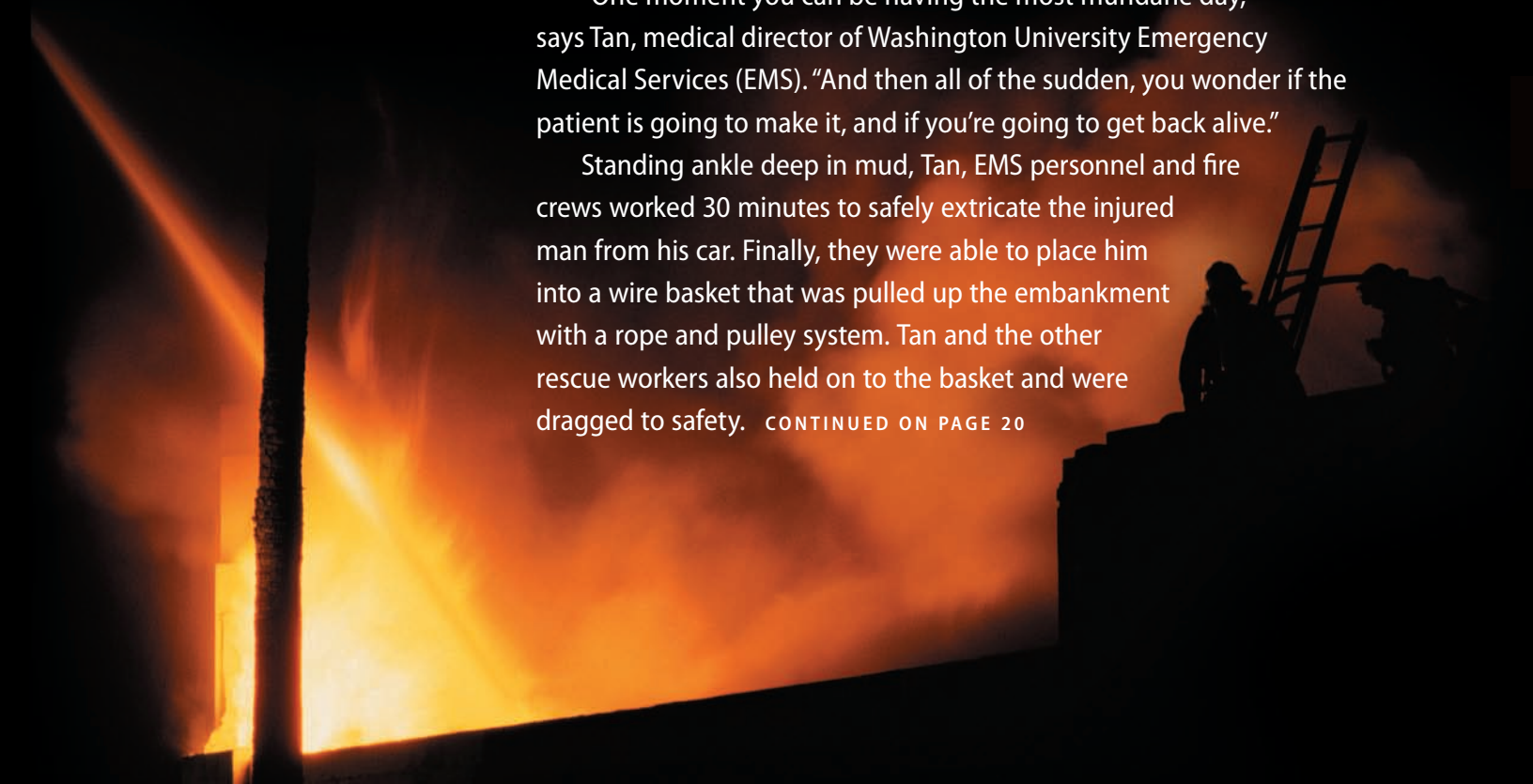
In 2009, a driver on Interstate Highway 70 near St. Louis suffered a seizure, crossed four lanes of traffic and crashed at the bottom of a steep embankment.

Soon after, terrified onlookers might have mistaken one man who rappelled 75 feet down for some kind of modern-day superhero, risking his life to save another. But it was actually David K. Tan, MD, assistant professor of emergency medicine, a physician with nearly 15 years' experience.

Tan and local firefighters and paramedics, the everyday heroes of the fire service, lowered themselves down the incline to determine how to stabilize the injured driver's spine, remove him from his car, and then hoist him up the ravine.

"One moment you can be having the most mundane day," says Tan, medical director of Washington University Emergency Medical Services (EMS). "And then all of the sudden, you wonder if the patient is going to make it, and if you're going to get back alive."

Standing ankle deep in mud, Tan, EMS personnel and fire crews worked 30 minutes to safely extricate the injured man from his car. Finally, they were able to place him into a wire basket that was pulled up the embankment with a rope and pulley system. Tan and the other rescue workers also held on to the basket and were dragged to safety. **CONTINUED ON PAGE 20**





Washington University EMS trains for varied response scenarios to maximize effectiveness and minimize danger.

ON-SITE ADVANTAGE *Pre-hospital emergency medicine*

FROM THE SITE OF A 9-1-1 CALL TO THE DOORS OF THE ER, your life depends on the critical distance you're about to travel — one more significant than miles alone. It's a distance of time, technology, expertise — and sometimes danger — in the chaotic uncertainty of a real-life emergency. But there's a movement to bridge this critical gap. Increasingly, emergency medicine recognizes the special demands of *pre-hospital* medicine, the need for "boots-on-the-ground" know-how far beyond the contents of most medical textbooks:

- Urban search and rescue
- Tactical medicine
- Wilderness medicine
- HazMat operations
- Fireground
- Flight medicine
- Disaster medicine

As Missouri's first and only physician-based Emergency Medical Response Agency (EMRA), Washington University physicians are leading by example. Through on-scene responses, continually updated protocols, and collegial first-person relationships with other responders, Washington University (WU) EMS sets a new standard for out-of-hospital care, exceeding the state's minimum requirements. A rigorous program trains emergency medicine fellows willing to trade their white coats for protective gear. Such extreme preparedness makes perfect sense the moment you dial 9-1-1.



Tornado: Survivors under rubble

Hostage standoff: Officers down

Train derailment: Chemical hazard

Warehouse fire: Injuries on scene

Caving accident: Injured and trapped

Emergency



9-1-1



Dispatch

Frantic calls initiate a cascade of events. The pre-hospital physician may direct the crisis response remotely or travel to the site.



WU EMS director David K. Tan, MD, in blue, trains with crew members from the Northeast Ambulance and Fire Protection District.

ROBERT BOSTON



First response



Life support



Transport

Whether in the office or in the field, pre-hospital medicine specialists act based on firsthand knowledge, making their consequent orders more accurate, credible and reliable. Their care for the well-being and education of the other responders — as well as their example of compassionate patient care — helps to ensure a first-rate, effective emergency response.





THE NEW **FIRST** **RESPONDERS**

The scenario was not unusual for Tan, also chief of the EMS Section in the Division of Emergency Medicine at the School of Medicine, and his physician colleagues.

In 2005, Washington University (WU) EMS became the first and only physician-based emergency medical response agency licensed in the state of Missouri.

Although all EMS agencies must have the oversight of a supervising physician and hospital, WU EMS is the only program in the region that routinely sends physicians out with their own response vehicles to help trauma patients at disaster locations. WU EMS vehicles are equipped with standard sirens and lights, cardiac monitors, medications and advanced airway instrumentation — everything needed to save a patient in the first few minutes of an emergency.

“Our response vehicles are a visible sign not only of our authority and responsibility, but of our commitment to the partnership we have with EMS agencies,” Tan says.

“We have to get through traffic and cross police lines. It’s a lot easier to do that in an EMS vehicle than a Volvo.”

WU EMS oversees many EMS agencies in the St. Louis area, including the Northeast Ambulance and Fire Protection District, Clayton Fire Department and Christian Hospital EMS. Tan and other emergency medicine physicians, including EMS fellows, are on call around-the-clock and rotate shifts at participating agencies. In a typical week, a physician might go on a dozen ambulance calls. During their shifts, they also meet regularly with chief medical officers and fire chiefs and they present classroom lectures on procedures for other personnel.

Many in the public don’t realize that EMS paramedics cannot practice medicine without the direct oversight of a supervising physician, says Tan. Like all such physicians, Tan and his colleagues provide this monitoring both indirectly, through written protocols, and directly, by taking paramedics’ calls for permission to administer medications. The physicians of WU EMS also perform ride-alongs with EMS staff to assess quality of care and patient safety issues.

Still, Tan stresses that he doesn’t go on 9-1-1 calls to interfere with the job EMS personnel are already doing. “We are there as a resource for paramedics, not to manage or take over the scene,” says Tan. “My first question when I arrive is: ‘What can I do to help you?’ We’re not too good to carry the EMS workers’ bags. I want the people we work with to be proud to be affiliated with us.”

Northeast Ambulance and Fire Protection District Capt. Philip Boling says that working with Tan and other emergency medicine physicians who can wield a fire ax or take a car apart is a great help. “It’s a resource most people in our profession don’t have,” says Boling.

WU EMS physicians also draw up pre-plans to handle specific situations that might arise, ranging from helping

patients with special needs to being prepared for events that involve the entire city of St. Louis.

For Fair St. Louis and the GO! St. Louis Marathon, the team works with civic leaders to organize medical tents, roving medic carts, central communications and disaster contingencies. In another scenario, Tan has been working with the family of a woman who weighs more than 900 pounds to develop a plan for her in-home care or transportation to a hospital in the event of a medical emergency.

“It’s rewarding to care for people in their time of greatest need,” says Tan. “Under such special circumstances, who else is going to be there to help them?”

Working with diverse local agencies provides unique training opportunities for WU EMS fellows. The yearlong fellowship program teaches emergency medicine specialists how to practice in a variety of environments. This extensive instruction prepares them to become medical directors and

chief EMS physicians and, according to Tan, graduates are already serving as leaders in their subspecialty locally and statewide.

Brian R. Froelke, MD, was the first graduate of the WU EMS fellowship program and is now medical director of Christian Hospital EMS in St. Louis. He credits the program with giving him the education and skills needed to bring 21st century medical direction to the agencies he oversees.

“Continuous quality improvement and cutting-edge research have significant impact on our ability to provide the best care to the patients we serve,” Froelke says. “The ‘boots-on-the-ground’ aspect of Washington University’s EMS fellowship program taught me firsthand about the challenges involved in providing medical care in the EMS environment.”

Tan says the success of WU EMS and its fellowship program is largely due to the support given by leadership in the Division of Emergency Medicine and Washington University administration, who recognize the importance of bringing emergency medicine directly to the community.

“Our EMS physicians in the Division of Emergency Medicine are responsible for the medical direction of agencies that make 150,000 patient contacts each year,” says Brent E. Ruoff, MD, associate professor of emergency medicine and chief of the Division of Emergency Medicine. “In addition to the classroom instruction and written protocols our physicians provide, we think there’s great value in joining local EMS personnel in the field and creating the kind of partnership that comes from working together where emergency care truly begins.”

For his part, Tan couldn’t agree more. “We are bringing Washington University into the community by providing the expertise of our physicians,” he says. “I am convinced that we provide better medical care by being out in the field with our EMS colleagues.” □

“Emergency medicine physicians are on-scene as a resource for paramedics and other members of the rescue team. My first question when I arrive is: ‘What can I do to help you?’”

— DAVID K. TAN, MD

PHOENIX

Rising

The firestorm of the Flexner Report left the university's failed medical college in ashes.

From east of the Mississippi came fresh minds to lead its reincarnation.

BY CANDACE O'CONNOR

TEACHING FACILITY
FOR SALE,
GREAT LOCATION!
The demise of the
university's first
"medical college" meant
vacating its downtown
quarters, right, and
relocating to what
was then the western
edge of St. Louis, today
known as the "Central
West End," along the
north/south axis of
Euclid Avenue.





BROOKINGS



DOCK



MURPHY

“We hope that our efforts will contribute, in some measure, to raising

During the 1909 Christmas season, Washington University’s board president, Robert S. Brookings, entertained a special visitor at his Lindell Avenue mansion: physician David L. Edsall, MD, a rising star in pharmacology at the University of Pennsylvania. Edsall had come to give Brookings and Chancellor David F. Houston some key advice, but his hosts had another sly purpose in showering him with attention. They wanted him to become the dean of their reorganized medical school.

Until a few months before Edsall’s visit, Brookings had no intention of rebuilding the medical school, though he knew it had flaws. After all, he had just depleted his energy and fortune in relocating undergraduates to the breathtaking Hilltop Campus. Then, in April 1909, Abraham Flexner paid a visit to the university, on behalf of the Carnegie Foundation for the Advancement of Teaching, and wrote a scathing critique of its medical school. It desperately needed new buildings, he said — and new faculty.

Where to recruit them? There was no doubt which direction they would look. In his report, a survey of 155 medical schools in the United States and Canada, Flexner had excoriated all but a handful of schools — and they were in the East. Yale. The University of Pennsylvania. Harvard. And towering above the rest, providing a model of enlightened medical education, was The Johns Hopkins School of Medicine.



Fresh start: The North and South buildings under construction, 1913–14

Hatching a plan In fact, Flexner himself was a graduate of Hopkins, as was his brother, Simon Flexner, MD, an eminent pathologist and first director of the young Rockefeller Institute for Medical Research. Simon and his Hopkins mentor, Dean William H. Welch, MD, had recommended the brilliant Edsall as just the adviser that Brookings and Houston needed. Abraham Flexner and his boss at the Carnegie Foundation — Henry S. Pritchett, PhD, once a Washington University faculty member and an old friend of Brookings — heartily agreed.

So Edsall paid his visit to St. Louis. Even though he turned down the deanship, he spun a gossamer vision of the “total reconstruction” of the medical school along ideal lines. There would be great laboratories for research and hospital beds within easy reach. As to faculty, he told Brookings that if all the department chairs were filled at once “with first-class men,” Washington University “would without question occupy the commanding situation in the country.”

Brookings, a romantic at heart, was captivated by this picture. He reported to Pritchett that it was “a scheme of organization that would make the strongest aggregation of medical talent for school purposes ever gathered together in this or any other country.” But he was also a shrewd businessman, who knew better than academics what airy dreams could cost.

On the eve of a three-month trip to Egypt, Brookings made a decision: He would give \$500,000 of the \$850,000 needed for the new facilities and one-quarter of the school’s



ERLANGER



OPIE



SHAFFER

the standard of medical education in the West.” — Robert S. Brookings

operating costs. He also authorized Houston to begin the search for the exciting young scientists they needed. And, as he admitted to Pritchett, he realized that his early largesse was “only the beginning.”

The men arrive Before leaving the country, Brookings saw Edsall again and met with Harvey W. Cushing, MD, the noted Hopkins neurosurgeon, to gain his advice and persuade him to come. While Cushing agreed to visit, he instead decided to go to Harvard; however, he helped recruit other talented faculty. To pathologist Eugene L. Opie, MD, a Hopkins graduate now associated with the Rockefeller Institute, Cushing wrote: “You have been ticketed for the chair at the Washington University in St. Louis, provided their move can go through. . . . I have been out there myself and things look very promising. . . . Abraham Flexner says it is the only school in the country that has prospects of a sufficient endowment.”

Opie signed on, and so did another Hopkins graduate, Joseph Erlanger, MD, who would chair physiology. Heading pediatrics would be John Howland, MD, a Columbia graduate. And the new dean, rated by Welch as among the best clinical teachers and scholars in the country, would be George Dock, MD, a graduate of the University of Pennsylvania.

The old Washington University medical faculty members — well-respected local clinicians who had long hoped for reform — were largely gracious about these changes, though at least one protested angrily to Brookings. From this group, Houston and his advisers retained one Europe-trained physician as head of anatomy: the admirable Robert J. Terry, MD, who would remain on the faculty until 1966.

They also would need a strong head of biological chemistry, and incoming faculty recommended Philip A. Shaffer, PhD, a Harvard graduate teaching at Cornell University’s medical school. Soon two others signed on: Fred T. Murphy, MD, another Harvard graduate, as head of surgery, and the previously reluctant Edsall, who now agreed to head preventive medicine.

Flexner and Pritchett were ecstatic with these developments. As Pritchett wrote to Brookings: “You have certainly got a stunning group of men together. I do not think the like is to be found in America.” Others were less star-struck, referring sardonically to the new faculty as the “Wise Men from the East.”

A lasting legacy Talented they were, but these new recruits had egos as well as tempers — and problems quickly developed. Irritated that the promised new buildings did not materialize more quickly, Howland departed after six months and soon took a position at Hopkins; the mercurial Edsall left for a post at Harvard.

And the plan for an executive faculty, modeled on a similar body of department heads at Hopkins, quickly ran into trouble. Dock wished to use this group as his advisers, while the heads wanted Dock to implement their decisions. In 1912, the conflict reached a flashpoint and the Executive Faculty forced Dock out, though he stayed on the faculty until 1922. Opie took his place for three years, then Shaffer for another four.

But for the most part, these first faculty members lived up to their description as wise men, offering a rich array of gifts to the medical school. Opie became a distinguished researcher, remaining until 1923. Murphy went abroad during World War I, serving as first director of Base Hospital No. 21. Erlanger won the Nobel Prize in 1944; Shaffer stayed for 50 years, serving as dean twice and doing seminal work on insulin.

At the 1915 medical school dedication ceremony, Robert Brookings expressed his own dream for its future. “We hope that our efforts will contribute, in some measure, to raising the standard of medical education in the West,” he said, “and that we will add, though research activities, our fair quota to the sum of the world’s knowledge of medicine.” Thanks to the new faculty members and their successors, his fondest hopes would all come true. □

Nearly simultaneous with the construction of the School of Medicine’s new home, across the street Barnes Hospital also was taking shape.





Communications officer Paul Banda credits the encouragement and support of his colleagues in Protective Services with helping him in a journey of professional, academic and personal growth.

ONCE A VICTIM OF HUMAN TRAFFICKING, with only temporary legal status in the United States, today Paul Banda is a permanent U.S. resident, respected co-worker, loving husband, aspiring artist and accomplished musician. Despite overwhelming odds, this Zambian immigrant has channeled his seemingly boundless energy and his faith in God's plan for his life into a classic American success story.

Right place, right time



Banda exhibits his work at a St. Louis art gallery.

More than a decade ago, Banda, now a communications officer in the School of Medicine's Department of Protective Services, was part of a Zambian boys' choir brought to the United States by a missionary who had heard them perform in their native land. At first the group was happy to travel around the United States, performing at churches, schools, Silver Dollar City in Branson, Mo., and even on NBC's "The Today Show," knowing that their efforts were providing stipends to their families and education funds to their community.

As time went on, however, conditions deteriorated: The boys were required to perform multiple concerts in a day, not fed if they couldn't perform, not allowed to attend school, and not paid for their efforts. They also received inadequate medical care and were often forced to perform manual labor.

Although the boys had limited contact with family back home, they eventually learned that neither their families nor their community, located on the outskirts of Lusaka, Zambia's capital city, were receiving any of the promised compensation.

While touring, the boys were not allowed to mingle freely with the people they met; even if they had been, their limited grasp of English at the time would have made meaningful communication difficult. However, during their travels they did obtain the business card of a St. Louis man who came to



Paul Banda and his wife, Dallyda Tatchi-Banda, recently welcomed a daughter, Nafisa.

hear them sing, and they held onto that card when they returned to the missionary's home in rural Sherman, Texas.

Seven months later and after four years of servitude, Banda and four of the older boys decided to escape. They ran 10 miles through the night to a nearby town and were able to contact the man who had given them his card. He advised them to contact local authorities. They did so, and their bravery launched an extensive federal investigation into the man who had brought them to the United States. He died before official prosecution could commence; Banda and the other boys were left in legal limbo.

While the U.S. Immigration and Naturalization Service sorted out the case, the younger boys were taken in by church host families. The older boys, now young men, used their St. Louis connection to move here and begin their lives anew.

Banda capitalized on his "second chance at life." He roomed with the other young men at various apartments, got a job stocking shelves at a local grocery chain, and immersed himself in learning the culture and the language.

Later while working for minimum wage at an area drug-store, Banda met a customer who changed his life. Impressed

While working at Olin, Banda realized he was the same age as the students and began to think he could improve his lot in life with education. "I knew I could do better," he says, "but what I didn't realize at first was that I was in the right place at the right time. The people at Washington University are amazing."

Banda began taking high school academic equivalency courses at St. Louis Community College (STLCC) and soon earned his general education diploma (GED). At the same time, he and other former choir members came back together as the *Zambian Acapella Brothers* and began performing at different venues around the St. Louis metropolitan area.

After a fund-raising performance at the Sheldon Concert Hall, Banda and the other choir members were offered two-year scholarships at STLCC. "I was scared to go to college," recalls Banda, "but I was so happy to get the challenge."

Banda went on to earn his two-year degree in political science. Now he is enrolled at Washington University where he takes classes in the evenings, maintains a 3.5 GPA and recently made the dean's list. Each night after classes, he heads back to the School of Medicine to work as a dispatcher.

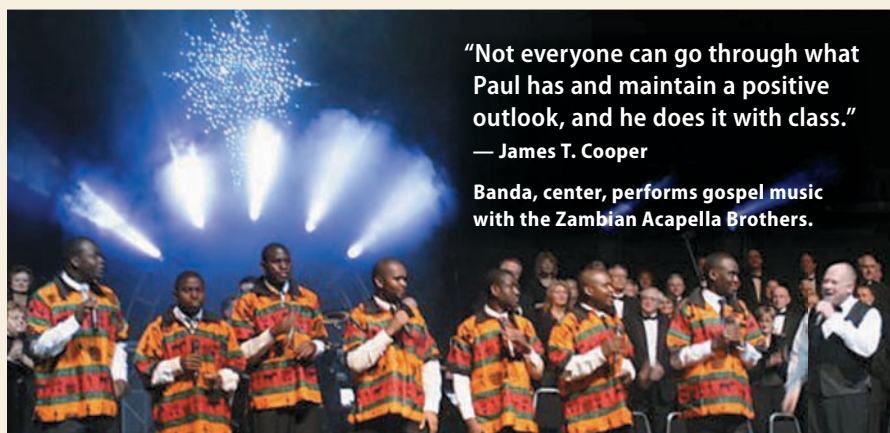
In addition to his full-time job and his academic schedule, Banda finds time to practice weekly with his singing group and spend quality time at home with his wife, Dallyda, whom he married in 2009. He has discovered a talent for sculpting and painting; several years ago his wire car sculptures were featured at the School of Medicine's annual art show, and he currently has several paintings on exhibit at a University City gallery. Meanwhile, the *Zambian Acapella Brothers* released a CD of gospel music in 2010.

Many people might wonder just how Banda remains so active. "It requires a lot of time, but my art is like therapy," he

says. "If I have a second chance at life, then I might as well live that chance. I know that no one is taking advantage of me, and I'm trying to be positive and contribute to society."

Just last year, Banda finally received the Green Card that authorizes him to live and work in the United States permanently. It also allows him to travel, and he hopes eventually to return to Zambia to visit his family. Still, as he puts it, "I'm happy to be part of St. Louis."

Despite his many accomplishments, Banda has no intention of slowing down. His next goal is to complete his undergraduate studies, with his sights set on law school and a future career in corporate law. Perhaps both of those dreams, he says, may also come true at Washington University. □



"Not everyone can go through what Paul has and maintain a positive outlook, and he does it with class."

— James T. Cooper

Banda, center, performs gospel music with the Zambian Acapella Brothers.

by his work ethic, she referred him to a local security firm where he would be able to more than double his hourly income. He took that job, which assigned him to work the front desk at Spencer T. Olin Residence Hall at the School of Medicine. Popular with his bosses, co-workers and medical students, Banda was soon offered a permanent position as a protective services officer with Washington University.

"Not everyone can go through what Paul has and maintain a positive outlook, and he does it with class," says Protective Services supervisor James T. Cooper. "Paul genuinely cares about others, and that really shows through in how he deals with people on the job. He's definitely a benefit to the School of Medicine and the university as a whole."

The love of grandparents

A family establishes a consortium to study a rare disease

The love for a grandchild is unmatched in intensity. The hopes and dreams grandparents have for a grandchild are unconditional. Different emotions emerge when you are told that your granddaughter has been diagnosed with a disorder that will forever make her life more difficult. The desire to keep her healthy is unstoppable. After five years of tests, doctors, questions and concerns, these grandparents' commitment to finding a treatment is unmatched.

Sam and Betsy Reeves' young granddaughter was originally diagnosed with scoliosis. They knew it was crucial that they identify the best doctors, who in turn would bring the safest and best remedy. A correct diagnosis of syringomyelia Chiari I malformation was made by Lawrence G. Lenke, MD, the Jerome J. Gilden M.D. Professor of Orthopaedic Surgery at the School of Medicine.

With Lenke's referral, the Reeves family took the young girl to internationally renowned pediatric neurosurgeon, T.S. Park, MD, the Shi Hui Huang Professor of Neurosurgery at Washington University School of Medicine and neurosurgeon-in-chief at St. Louis Children's Hospital.

Pediatric neurosurgeon
T.S. Park, MD





“Proper treatment of syringomyelia can be elusive . . . It’s more of an art than a science. The key is having access to and dialogue with great medical practitioners such as Dr. T.S. Park.”

— Sam Reeves

Betsy and Sam Reeves are changing the future for their granddaughter.

Syringomyelia is a disorder that affects children and young adults that when left untreated can lead to severe, chronic pain and progressive muscle weakness. Sam and Betsy learned that the condition is so infrequently encountered that there are no evidence-based guidelines to help determine the best treatment.

The Reeves saw the immediate need to work with Park and his colleagues at Washington University and St. Louis Children’s Hospital in an effort to halt or reverse their granddaughter’s condition. They subsequently decided to partner with Park and establish the Park/Reeves Syringomyelia Research Consortium.

Sam shares, “Our granddaughter didn’t show typical syringomyelia symptoms so she was misdiagnosed four times by outstanding facilities/orthopedic surgeons as having scoliosis before our visit to Dr. Lenke at Washington University. We also discovered that proper treatment of syringomyelia can also be elusive . . . It is more of an art than a science. The key is having access to and dialogue with great medical practitioners such as Dr. T.S. Park. With this in mind and after countless hours of research, visits and networking, it is our hope that the Park/Reeves Syringomyelia Research Consortium will be a collaborative research center that can gather large-sample-size information about syringomyelia patients from hospitals across America.”

The information collected will be used to create a national syringomyelia registry that will facilitate the diagnoses, treatments and outcomes for current and future patients.

Park assembled a team of exceptional physicians and scientists at Washington University including Lenke, David D. Limbrick Jr., MD, PhD, Ralph G. Dacey Jr., MD, and Robert C. McKinstry III, MD, PhD. The consortium, headed by Park and Limbrick, includes more than 30 pediatric neurosurgery centers from across the United States.

According to Park, the private donation for creation of a national registry for the study of any

neurological disorder is unprecedented. The overarching goal is to establish guidelines for the best practices for treatment of syringomyelia in children. The data generated from the consortium will benefit not only the Reeves’ granddaughter, but other children as well.

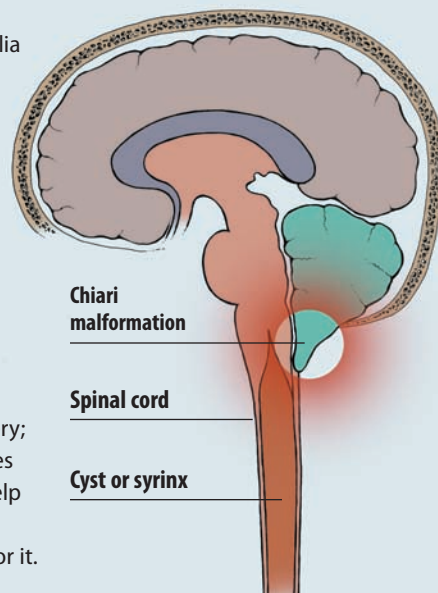
Thanks to Park and other medical colleagues, the Reeves’ granddaughter is courageously reinventing herself. Before, she was a Division I soccer player and cross country runner. Now, she is actively pursuing some old and new passions. Currently, she is an environmental enthusiast, photographer, reader, Harry Potter club organizer, and butterfly gardener.

The Reeves’ gift to Washington University has forever changed the future of syringomyelia research. Without the private philanthropy of gracious donors like the Reeves, the large-scale research of syringomyelia would not be possible.

The unwavering love of grandparents is truly unmatched in intensity. And, in the process, faith and hope abounds for others. □

Hidden dangers

A pediatric patient with syringomyelia develops a cyst, or syrinx, in his or her spinal cord. Syringomyelia can cause paralysis, loss of sensation in the hands, scoliosis and other problems. It is often associated with a condition known as a Chiari malformation, circled, that involves the protrusion of the bottom of the cerebellum through the foramen magnum, an opening in the base of the skull. Currently the only known treatment for syringomyelia is surgery; the grant from Sam and Betsy Reeves will establish a patient registry to help doctors better diagnose the rare condition and develop treatments for it.



The meaning of giving back

"We are home to some of the finest faculty in the world, most of whom are also deeply involved with the medical education of our students." — Larry J. Shapiro, MD 71, dean of the School of Medicine and executive vice chancellor for medical affairs

Through *Opening Doors to the Future: The Scholarship Initiative for Washington University*, gifts from faculty for scholarships are demonstrating the depth of commitment to medical education. No one can explain the importance of scholarships better than the recipients, donors and honorees.

"The scholarship I received from Dr. Deusinger has allowed me to realize how lucky I am to be surrounded by individuals who are willing to give to students in order to further education in the field of physical therapy. I feel like a respected member of the student body and that I belong here, and I am very grateful to have received such an honor."
—Jenny Shoemake



Susan S. Deusinger Scholarship

"I want to help ensure that the next generation of physical therapists receives the best possible training for clinical practice. Scholarship support is critical for students to be able to come to Washington University with their focus on learning to provide patients with excellent care, rather than on the financial stress associated with graduate education. I hope that such support paves the way for the many outstanding physical therapy students from Washington University to become leaders in our profession."
— Susan S. Deusinger, PhD

"I am greatly appreciative of my scholarship; it helps to decrease my stress level when it comes to finances, which translates into more focused learning and patient care. When my career is established, I hope that I can lend support to medical students in the same way." —Ameet Thaker



Dennis and Helene Hallahan Scholar in Medicine

"Participating in this scholarship program from the beginning provided an opportunity to make a huge statement: Our students are worth this financial investment, along with the time and energy that we have always invested into their careers. I am delighted that Ameet Thaker received this financial support. He was selected as a Howard Hughes Fellow and conducted outstanding research in gastroenterology. He will be a national leader in health care."
— Dennis E. Hallahan, MD

"Receiving this scholarship cemented my decision to attend Washington University School of Medicine, and it is undoubtedly one of the best decisions I have made. Studying at this institution and being a member of such a supportive and inspiring community will help me to become the best doctor possible." — Jori May



Dr. W. Edwin Dodson, given in his honor

"Jori is an accomplished, energetic person who had many options for attending medical school. Being able to offer her a merit-based scholarship demonstrated that we were confident of her ability and believed in her promise. She has exceeded expectations by making the most of opportunities here and at the same time enriching and brightening our community. It's a real treat to see her take on leadership roles while her career is taking flight. And it's all the sweeter because our faculty members who know our students so well have made this possible." — W. Edwin Dodson, MD



ROBERT BOSTON

Distinguished Alumni Honorees and Scholars (l-r): Llewellyn Sale Jr., MD 40, Katherine H. Smith, George E. Murphy, MD 52, Samuel W. Reinhardt, Will R. Ross, MD 84, MPH, Joseph F. Ruwitch Jr., MD 66, Christopher T. Chen. Not pictured: Varun Chalivendra.

Scholarship honorees, students mingle at luncheon

The Distinguished Alumni Scholarship Program (DASP), established in 1989 by the Washington University Medical Center Alumni Association, awards four-year, full-tuition scholarships named in honor of esteemed alumni of the School of Medicine.

Honorees are selected by the Alumni Association Executive Council based on outstanding citizenship and leadership, and scholars are chosen by a faculty committee for their exceptional academic record and character.

"The caliber of applicants to the School of Medicine puts us in the desirable position of selecting the best of the best," says Larry J. Shapiro, MD 71, dean of the School of Medicine and executive vice chancellor for medical affairs. "Helping top-notch students to afford the outstanding medical education we have to offer is one of my highest priorities."

These merit-based scholarships are a significant factor

in the decision process for each student when considering Washington University. Since the inception of the scholarship, 180 alumni and students have participated in the program. A recent celebration luncheon gave honorees and scholars a chance to get to know one another better.

"I am extremely thankful for my scholarship," says Samuel W. Reinhardt, first-year medical student and DASP scholar. "It made attending Washington University School of Medicine a possibility, something I otherwise would not have been able to finance. The program has given me the chance to meet Dr. Ruwitch, my scholarship honoree. He and his wife have welcomed me to St. Louis, helped me gain perspective on Washington University's role in St. Louis health care, and even sent me cookies during finals!"

Past honoree and student pairs have greatly enjoyed continuing their relationship throughout the students' time at the School of Medicine.

Thank you!

With appreciation to all faculty, current and retired, who are sponsoring annual scholarships

**Anonymous donor in honor of
Dr. John Constantino**

**Anonymous donor in honor of
Dr. W. Edwin Dodson**

Dr. Carl D. and Shirley J. Bohl

Dr. Robert H. Deusinger

Dr. Susan S. Deusinger

**Dr. Timothy J. and
Kimberley A. Eberlein**

Dr. Julaine M. Florence

**Dr. Victoria J. Fraser and
Dr. Steven B. Miller**

**Dr. Richard H. and
Mrs. Sarah Gelberman**

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Mrs. Helene Hallahan**

**Dr. David M. and
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Judy Child**

**Dr. Clay F. and
Dr. Janice W. Semenkovich**

Dr. Emily L. Smith

Dr. Morton E. Smith

Recognition Dinner a hit for Scholars in Medicine

The third annual Scholars in Medicine Donor Recognition Dinner was held on Nov. 20, 2010. The event, hosted by School of Medicine Dean Larry J. Shapiro and Mrs. Carol Uetake-Shapiro, was an occasion to recognize generous donors who have “named” scholarships and to celebrate current medical, physical therapy, occupational therapy and audiology and communication sciences students who benefit from these scholarship gifts.

More than 335 students, alumni, friends and faculty gathered in the Starlight Ballroom at the Chase Park Plaza. The donors had the opportunity to meet their scholarship recipients, and the students were able to interact with their outstanding mentors.

Setting the evening’s tone, Shapiro, MD 71, who also is executive vice chancellor for medical affairs, shared: “We celebrate these bright young minds, and we entrust them with the future of our health care.”



Chancellor Mark S. Wrighton was entertained by fourth-year medical student and 2011 class president Jonathan Byrd when he spontaneously showed off his skills with new custom Washington University School of Medicine juggling balls, a gift from Dean Larry J. Shapiro, MD.

More than 65 percent of medical students at Washington University receive scholarships. The percentage is even greater for physical therapy, occupational therapy, and audiology and communication sciences students.

This year, the School of Medicine awarded 42 annual scholarships and 122 endowed scholarships. In nearly two years of the Opening Doors to the Future: Scholarship Initiative, individuals and families have committed more than \$15.5 million toward a \$25 million goal for the school.



Terry Schnuck and Sally Schnuck, OT 82, with occupational therapy student Sarah C. Cheatham.



William T. Shearer, MD 70, and Lynn Des Prez with medical student Raymond A. Jean.



Morton E. Smith, MD, HS 66, and Paula Smith with medical student Katie Y. Hu.



Ann Randolph Flipse, MD 59, with medical student Farhan Katchi.



Where you belong!

REunion 2011

APRIL 28–MAY 1

- ◆ **REnew**
friendships
- ◆ **REthink**
medicine
with CME
opportunities
- ◆ **REconnect**
at the Class
Dinners
- ◆ **REdiscover**
St. Louis
- ◆ **REvisit** the
ever-changing
medical campus



Reunion 2011 is right around the corner, with an exciting new schedule of events! You will have opportunities to take CME courses offered by fellow alumni and current faculty members and to tour the ever-expanding medical center. There will be trips to the Saint Louis Zoo, the Saint Louis Art Museum and the Missouri Botanical Garden. You can enjoy a jog through Forest Park and take in more St. Louis sights! And, of course, you will have the opportunity to reconnect with classmates at the Friday night class parties and the Saturday night Alumni Banquet.

Reunion at a glance

Thursday, April 28

4:30 PM – 8 PM Registration
6 PM – 8 PM Reception

Friday, April 29

7 AM Light Breakfast
7 AM Registration
8 AM – 10:55 AM CME Programming
9 AM – 2 PM Forest Park Activities
11 AM WUMCAA Business Meeting
11:45 AM Dean's Luncheon/ WUSM Update
1:30 PM What's New at the Medical Center
2:30 PM Walking Tours of the Medical School
5:30 PM Reception and Class Dinners
9 PM Live Music

Saturday, April 30

7 AM Run Through Forest Park
7 AM – 10 AM Breakfast
9 AM Missouri Botanical Garden
10 AM Saint Louis Art Museum
3 PM Miracle of Peanut Butter Presentation
6 PM Reunion Awards Reception
6:45 PM – 8:45 PM Reunion Awards Banquet
Dinner and Presentation of Awards
9 PM – 11 PM Dancing and Live Music

Sunday, May 1

6 AM – 10 AM Continental Breakfast



For more details on MD Reunion 2011, visit: medicalalumni.wustl.edu

Second-year medical student Rachel E. Amthor, a Washington University Ann W. Olin Women's Fellow, works in Malawi on Project Peanut Butter, an effort to end malnutrition in children.



RACHEL AMTHOR

UNSURE THAT MEDICINE was in her future, as an undergraduate at Washington University, Rachel Amthor enrolled in a few premedical courses but didn't want to let go of the riches she had discovered during her studies of literature, languages and social sciences to become a doctor. She also wanted to focus on a human-centered, public health field. Her grandfather, a pediatric oncologist who shared with her his love of Chekhov and Tolstoy, reassured her that committing herself to medicine would inevitably also commit her to lifelong learning.

Amthor, who graduated early with degrees in anthropology and Chinese, was determined to continue learning. She took advantage of an opportunity to work with pediatrician Mark J. Manary, MD, the Helene B. Roberson Professor of Pediatrics, who has revolutionized treatment of severe malnutrition. She realized through her work with Manary in Malawi and on another project in Kenya that medicine is nothing but a hands-on, human-centered public health field. Manary showed her how a commitment to science and math, and to medical school, is really a commitment to serving others.

First steps to lifelong learning

"Rachel is absolutely amazing, and she demonstrates the qualities of a true humanitarian, channeling her excellent scientific and intellectual skills for the betterment of undernourished and underprivileged children," says Manary.

Rachel did decide to become a doctor. She knew she wanted to help patients in

"Rachel demonstrates the qualities of a true humanitarian, channeling her excellent scientific and intellectual skills for the betterment of undernourished and underprivileged children."

Mark J. Manary, MD

underserved areas, a valuable and much-needed position within a community. But she was also afraid that her indebtedness to school loans would interfere with her commitment to those less privileged.

Then, while living in rural Kenya the summer after graduation, Amthor received an email from W. Edwin Dodson, MD, associate dean for admissions, stating that she had received a scholarship to Washington University School of Medicine.

She quickly and happily replied with her acceptance to be an Ann W. Olin Women's Fellow.

The Ann W. Olin Women's Fellowship program supports women in all graduate programs at Washington University and brings the scholars together throughout the year. As a current fellow, Amthor looks to other Olin fellows for advice and examples of how they have directed themselves toward their often unique and ambitious academic goals.

"In addition to the unmatched variety and bounty of cutting-edge medical research and practice it offers, Washington University is more supportive of students as people and as individuals than any other school I encountered," says Amthor.

In her quest for lifelong learning, Amthor is studying philosophy with a family friend and retired professor. After finishing a conversation with him, she said, "I am amazed with the beauty of being alive, with human fallibility, and with the relationship between those conditions that underscores what I am here to learn." Her grandfather knew best; she is currently following in his footsteps with an interest in pediatric oncology.

1940s

Stanley Kahn, MD 43

Following postgraduate training at Tour Infirmary in New Orleans LA, Kahn served for more than two years in England, France and Germany. During his tour in England, he ran two surgical wards with the 111th General Hospital. Upon returning home, he completed a residency at what is now the University of Alabama in Birmingham and also spent time in Boston MA at the Harvard School of Public Health, Department of Nutrition, and at Peter Bent Brigham Hospital. He then returned to Alabama to start his practice of internal medicine. After 38 years in practice, he joined the faculty of the community hospital, where he taught medical house staff. In December 1999, he and his wife moved to Berkeley CA to be close to their two younger children.

1950s

Philip Norman, MD 51

Norman, who has been a faculty member at Johns Hopkins School of Medicine for 54 years, is an active professor of medicine in the Division of Allergy and Clinical Immunology, which he helped found in 1970. He sees patients at the clinic one day per week and teaches a postdoctoral fellow in allergy and immunology.

Robert Peterson, MD 56

Peterson, who has been retired for about 10 years, recently completed a three-month medical mission in the Kingdom of Tonga, an 18-month stint providing medical care to missionaries in the Dominican Republic, and a five-month trip to New Zealand. He and his wife have been married for 57 years and have six children, 25 grandchildren and four great-grandchildren.

Richard Hudgens, MD 56

Hudgens continues to work full time as professor of psychiatry at Washington University School of Medicine, seeing patients and teaching students and psychiatry residents. His life is full with children, grandchildren and great-

grandchildren, many of whom live in the St. Louis area. He recently traveled to Nova Scotia, Canada.

1960s

George Powell, MD 64

Powell is fully retired and living on the Georgia coast after 26 years as a U.S. Army surgeon and 14 years in private practice in Augusta GA. His greatest accomplishments include serving with NASA as an on-board trauma surgeon during ocean recoveries for Apollo and Skylab missions, holding associate clinical professor positions at four different medical schools, and becoming a program director for surgical residency programs in El Paso TX and Augusta and a surgical consultant to the U.S. Army Surgeon General. Powell and his wife enjoy their four children and four grandchildren, and he also spends time playing golf and fishing. Powell notes that he and his father owe much to Washington University; a scholarship in honor of Powell and his father, Gen. **George Powell, MD 32**, honors their commitment to Washington University School of Medicine.

David Polage, MD 66

Polage is looking forward to his 45th reunion. He, his wife and extended family live in Yakima WA. His main focus lately has been to work with Meds and Food for Kids, a St. Louis-based group that addresses the needs of malnourished children in Haiti with their Ready to Use Therapeutic Food-Medika Mamba. He continues to teach several courses for the University of Washington and is a medical director for the state of Washington at a nearby institution for the developmentally disabled. He enjoys participating in the music program at his church and hiking on the many mountain trails near his home.

Paul Lange, MD 67

Lange was the chair of urology at the University of Washington for 19 years. He now leads the Prostate Cancer Research Institute there, sees patients and conducts research. He will soon focus solely on research so he has time to enjoy his grandchildren, tennis, traveling and

woodworking. Washington University School of Medicine remains "a warm and grateful memory."

Emily Smith, MD 68

Smith, associate professor emeritus, retired on July 31, 2010, after 41 years at the Mallinckrodt Institute of Radiology at Washington University School of Medicine. She hopes to fill her time in the future by traveling.

1970s

Marshall Bloom, MD 71

Bloom is the associate director for scientific management at Rocky Mountain Laboratories in the Division of Intramural Research of the National Institute of Allergy and Infectious Diseases, in Hamilton MT. He also manages an active research program in the pathogenesis of tick-borne viruses. His older son, Jesse, is completing a postdoctoral fellowship in virology at the California Institute of Technology; his younger son, **Seth, LA 04**, is completing the research portion of the MD/PhD program at Washington University School of Medicine. His wife, Tonia, is the longest-serving school board member in the state of Montana.

Charlotte Jacobs, MD 72

Jacobs recently became professor emeritus of medicine (oncology) at Stanford University. She is the author of a biography, *Henry Kaplan and the Story of Hodgkin's Disease*, which was recently released and named one of the top five medical biographies by *The Wall Street Journal*.

David Olander, MD 74

David Olander and Jitka Velinsky Olander are retired and living in University City MO. They have traveled the world, but now focus on visiting their grandchildren in North Carolina, Minnesota and London. They also continue to host dinner parties, read, sew, garden and create stained glass windows.

Pamela Gallin Yablon, LA 74, EN 74, MD 78

Yablon has been named to the board of the Harvard Kennedy School Women's Leadership Board.

1980s

Darrell D. Walter, MD 80

Walter resides with his wife, Patricia, in Covina CA, where he is a cardiologist at the Magan Medical Clinic, Inc. He enjoys his volunteer work with Calvary Chapel Golden Springs and also found great meaning in his medical outreach to the city of New Orleans shortly after Hurricane Katrina.

Grace Tannin, MD 85

Tannin is a pediatric endocrinology specialist and an associate professor of pediatrics at the University of Texas Southwestern Medical School in Dallas TX. She and her husband, Howard Denemark, reside in Dallas with their children.

1990s

Jacqueline L. Hoffman, MD 95

Hoffman is a pediatric emergency attending physician at St. Louis Children's Hospital and medical director of Pediatric Advanced Life Support in St. Louis MO. She resides in Chesterfield MO with her husband, Dennis E. Hourcade, PhD, research associate professor of medicine at Washington University School of Medicine.

2000s

Doran Fink, MD 00

Fink's pastimes include continuing academics, accumulating baby paraphernalia, and volunteering for Hands on DC, an all-volunteer project that creates better schools and brighter futures for students in the District of Columbia.

IN MEMORY

Leo A. Sachar, LA 36, MD 40

Sachar died on Dec. 9, 2010. He earned his undergraduate and medical degrees at Washington University and was chief of surgery and president of the medical staff at Jewish Hospital. He enjoyed teaching medical students and training young men and women to become surgeons. Sachar also served as a U.S. Army surgeon during World War II and as vice chairman of the board of directors and then vice president for medical affairs at St. Elizabeth's Hospital in Belleville IL.

Asa C. Jones, AB 38, MD 42

Jones died on Oct. 25, 2010. He served as a captain in the U.S. Army, followed by a 35-year career as an orthopedic surgeon at St. Rita's Medical Center in Lima OH. In 1975, he retired to Hot Springs Village AK. In 1996, he and his wife established the Asa C. and Dorothy W. Jones Endowed Professorship in the Department of Orthopaedic Surgery at Washington University School of Medicine. Jones, who received the 2nd Century Award from the School of Medicine in 1999, was a regular attendee at medical school reunions and many other events at Washington University. He was also a Life Patron of the Eliot Society and a member of the Brookings Partners. His generous planned gifts will endow the J. Albert Key Distinguished Professorship in Orthopaedic Surgery at the School of Medicine.

S. Fulton Tompkins, MD 42

Tompkins died on Oct. 22, 2010. He was 94. After graduating from Washington University School of Medicine, he interned at the University of Pennsylvania, then entered into a general surgery residency at the Mayo Clinic. In July 1945, he joined the U.S. Navy, where he developed an interest in orthopedic surgery. In 1946, he returned to the Mayo Clinic as an orthopedic resident. After finishing his training, Fulton joined Don H. O'Donoghue, MD, in the practice of orthopedic surgery in Oklahoma City OK where both men taught orthopedic residents at the University of

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- Email medicalalumni@wustl.edu • Update online: medicalalumni.wustl.edu

Oklahoma (OU) and Tompkins developed a subspecialty in scoliosis. In 1962, he went into solo practice at Baptist Medical Center and continued to work with OU orthopedic residents as a clinical professor. His son John joined him in practice in 1987; they practiced together until Tompkins retired in 1988. Father and son authored a book, *An Ounce of Prevention: The Truth About Our Health*, soon to be published.

Virginia L. Whitson, NU 43

Whitson, 88, died on Aug. 7, 2010, in Memorial Hospital of Carbondale in Carbondale IL. A veteran of World War II, she served as a second lieutenant in the U.S. Army Nurse Corps. After graduating from Washington University School of Nursing, she worked at Barnes Hospital in St. Louis MO.

Mary E. Baer, NU 46

Baer died on June 9, 2010. She joined the U.S. Army Nurse Corps in 1952 and then began teaching at Washington University School of Nursing. Baer later went on to teach at St. Luke's School of Nursing and to earn her master's degree in nursing from Washington University. She retired from St. Luke's in 1980.

Charles P. McGinty Sr., MD 49

McGinty, 85, died on Oct. 31, 2010, in Cape Girardeau MO. After graduating from Washington University School of Medicine, he completed a surgical residency training program at Barnes Hospital in St. Louis MO. His chief residency year was completed at St. Luke's Hospital in St. Louis in June 1955. McGinty became the first board-certified general surgeon and member of the American College of Surgeons in southeast Missouri in 1957. The practice he created in 1964 still actively serves local hospitals and large areas of southeast Missouri and southern Illinois. Later in his career, he was the medical director and physician for the Southeast Missouri Hospital Hospice Program. He published numerous articles, videos and editorials about general surgery and medical politics.

Bertram Jay Oppenheimer, MD 50

Oppenheimer died on March 18, 2011. He graduated from Cornell University with a pre-med dual major in zoology

and philosophy. He enlisted in the Army Enlisted Reserve Corps in 1942, which allowed him to graduate from college before being called to active duty. When he received his discharge from the military, he was accepted into Washington University School of Medicine, graduating in 1950. After completing an internship at Kings County Hospital and an internal medicine residency at Montefiore Hospital, Oppenheimer entered private practice and worked as an internist with a specialty in gastroenterology with privileges at Yonkers General, Yonkers Professional and Montefiore Hospitals in New York NY. He also made a career change, taking the position of Administrator of Yonkers General Hospital, which he held until 1994. After retiring in 1995, Oppenheimer finally had the time to enjoy his lifelong hobbies of philately, crossword puzzles and reading.

Samuel E. Guyer, DDS, DE 52

Guyer died on Dec. 11, 2010. He received training as a dental technician while serving in the U.S. Navy during WW II; later he completed pre-dental studies at Oklahoma State University and then entered dental school at Washington University. Immediately upon graduation, Guyer joined the faculty of the Washington University School of Dental Medicine as an instructor of crown and bridge prosthetics; he became head of the department in 1958. He was promoted to professor of fixed prosthodontics in 1961, and, in 1977, he became chairman of the Department of Restorative Dentistry. In 1987, he was named a professor emeritus of restorative dentistry.

Eugenia M. Pierce, MD, HS 61

Pierce died on Jan. 11, 2010, at the age of 83. She was a clinical instructor of pediatrics at St. Louis Children's Hospital and Barnes-Jewish Hospital. A 1958 graduate of Saint Louis University School of Medicine, she completed a residency in pediatrics at St. Louis Children's Hospital, where she served as chief resident from 1960-61. She then practiced pediatrics at the Labor Health Institute in St. Louis for 43 years until retiring in 2004.

FACULTY

James A. Felts, MD

Felts, a retired associate professor of anesthesiology at Washington University School of Medicine, died on May 31, 2010. He was 88. A graduate of Northwestern University School of Medicine, he joined the faculty at Washington University in 1972, where he taught residents in anesthesiology until his retirement in 1988.

Harvey A. Friedman

Harvey A. Friedman, 90, a retired St. Louis banker and businessman, died on Nov. 28, 2010, at his home in Creve Coeur MO. Friedman helped to create the Center for Aging at Washington University, and his continued support and advocacy for aging research and programs led Washington University to establish the annual Friedman lecture-ship in 2001 and to rename the center as the Harvey A. Friedman Center for Aging in 2007. Friedman was also a major supporter of Washington University School of Medicine, where he established the Harvey A. and Dorismae Hacker Friedman Distinguished Professorship of Neurology. In 2008, Friedman and his wife, Dorismae Hacker Friedman, received Washington University's Robert S. Brookings Award. Friedman graduated from Washington University with a degree in business.

If you would like to make a tribute in honor of any of the aforementioned alumni or faculty, please contact:

Pamela Buell, Washington University Medical Alumni and Development, Campus Box 1247, 7425 Forsyth Blvd., St. Louis, MO 63105, (314) 935-9691.

Scholars in Medicine

SCHOLARSHIP PROGRAM



- Scholarship support is one of the highest priorities of the School of Medicine. As the costs of medical education continue to increase, it is our goal to provide financial support that reduces debt upon graduation and allows students to make career choices based more on passion and less on income.

 **Washington**
University in St. Louis
SCHOOL OF MEDICINE

Call (314) 935-9691

For more information, complete the reply card
or email us at meddev@wustl.edu.

Visit our website: scholarshipinitiative.wustl.edu

The Rewards Are Many

- You may name your scholarship in memory of a loved one, in tribute to a friend, or in honor of yourself, your family or your company.
- In the fall, a student will be selected to receive your scholarship, and you will be notified with information about the student.
- You will receive an invitation to the annual scholarship dinner.

Options for Sponsors

The range for **annual gifts** is \$5,000 to \$50,000 a year. A gift in the upper range will provide a larger percentage of the student's total financial need and reduce the student's debt. Or you may create a **permanent endowment** to establish a named scholarship in perpetuity. This provides stability for the future and frees annual operating income for other urgent needs. A third option is to create a permanent endowment through a gift in your **estate plan**.

ANNUAL SCHOLARSHIPS

Danforth Circle Annual Scholarship

Chancellor's Level	\$50,000
Dean's Level	\$25,000
Patron's Annual Scholarship	\$10,000
Benefactor's Annual Scholarship	\$5,000

PERMANENTLY ENDOWED SCHOLARSHIPS

Benefactor's Endowed Scholarship	\$1,000,000
Founder's Endowed Scholarship	\$500,000
Sustaining Endowed Scholarship	\$250,000
Endowed Scholarship	\$100,000



Scholarship support

Fourth-year medical student Victoria Yom with Ann Randolph Flipse, MD 59, at the second annual Scholars in Medicine Donor Recognition Dinner. Yom was the 2009–10 recipient of the Ann Randolph Flipse, MD Scholarship Fund at Washington University School of Medicine.



DE HUMANI CORPORIS FABRICA

ON THE FABRIC OF THE HUMAN BODY

A milestone in science, medicine and communication, Vesalius' epic tome turned a page in European history. The essential anatomy handbook for 16th-century physicians, the book became a reference point for scholars, a prize possession for book collectors. The Bernard Becker Medical Library now holds the first, second and third editions, the third donated recently by H. Richard Tyler, MD 51. Even with its pages yellowed and its knowledge superseded, the light of Vesalius' daring inquiry still shines bright.

1543

Centuries of medical dogma are dispelled when the first printing disseminates highly detailed anatomical illustrations and new information based on dissections.



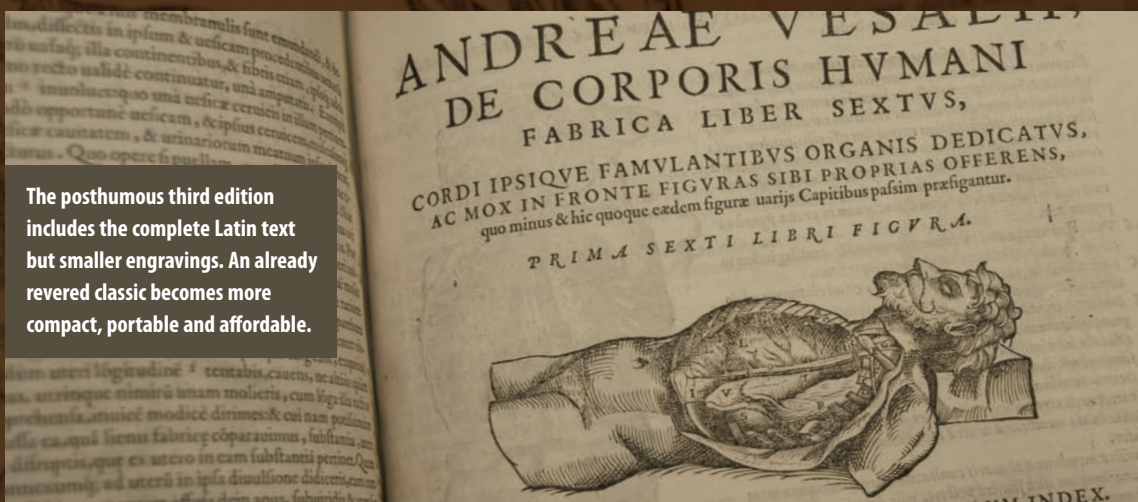
1555

Now a famed and wealthy court physician, the author's portrait appears in the second edition, which contains several important revisions.



1568

The posthumous third edition includes the complete Latin text but smaller engravings. An already revered classic becomes more compact, portable and affordable.



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Welcome committee When St. Louisans saw winter return with a vengeance in the form of more snow than in recent years, a mystery sculptor from the Program in Physical Therapy used the frozen precipitation to good advantage. Posing with the icy greeters at the 4444 Forest Park Building, where the program is based, are (l-r) PT students Jamie M. Nesbit, Kristen M. Johnson, Sharon K. McMonagle and Megan R. Prouhet.